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**FORTNIGHTLY
REVIEW**



News Story

APPEARING on the front page of *The Washington Post* on November 2 was a news story from Mexico heralding the opening of a half-mile railroad bridge spanning the Suchiate River on the Guatemala-Mexico border, thus bringing rubber, sugar, coffee, bananas and other tropical products "to within four days of the United States border."

Doubtless the closing of this railroad gap is an important event, for it does provide a submarine-proof all-land method of transporting products and supplies between this country and Central America. But think of the long, tedious rail trip required: four long days to the U. S. border and another full day, at least, before the freight reaches the first major U. S. city.

How easily the job of transportation could be handled by air! The average freight car in the U. S. carries about 28 tons. Suppose a train of twenty such cars (and this is a long train for that part of the world) left Guatemala loaded with tropical products, and suppose this train could reach Houston, Texas, within five days. That means about 560 tons of products, depending, of course, on what comprised the shipment.

Twenty freight cars, five days, 560 tons. Let's see what a cargo airplane in common use today can do.

(Turn to page 20)

New Materials Plan Forcing Crucial Decision on Air Power

Extensive Reorganization of Aero Chamber Underway

By WAYNE W. PARRISH

THE Aeronautical Chamber of Commerce was plunged into the worst crisis of its existence late in October but as this issue went to press prospects appeared bright for a complete reorganization—with the industry unified—prior to the annual meeting of the organization Dec. 3.

A radical reorganization of the Chamber structure is under consideration following a series of resignations by large airframe manufacturers which amounted to a stampede. But many of the resignations were for self-protective reasons since any members in good

standing after the end of the fiscal year Oct. 31 were liable to full dues for the new year and none of the remaining companies wanted to carry the burden of financing the Chamber alone or in a small group.

The crisis was precipitated by west coast members who had been unsuccessful in bringing about changes in the Chamber which they and some other companies had desired for several years. First to resign were North American Aviation, Inc., Northrop Aircraft, Inc., Consolidated Aircraft Corp. and Vultee, Inc. Later resignations came from Douglas Aircraft Co., United Aircraft Corp., Curtiss-Wright Corp., Brewster Aeronautical, Republic Aviation Corp., Ryan

(Turn to page 15)

High Command Must Decide on 1943 Policy Now

By ROBERT H. WOOD

ALTHOUGH the new Controlled Materials Plan announced by WPB Nov. 2 was hailed mainly as a means to determine 1943 war production schedules from materials which will be available, deeper significance as viewed by aviation proponents is that it is compelling the political and military high commands to come to grips with the fundamental decision as to whether they will wage an air war next year, and plan accordingly.

For no matter how carefully or accurately WPB balances its budget of materials and requirements, any given pound of aluminum or magnesium or steel can be channeled as simply into tanks or ships as into aircraft. The crux of the plane production problem for 1943 still is the master blueprint to be handed down to WPB and the Army and Navy, who do the actual scheduling.

On this master blueprint, regardless of the number of intervening agencies between the White House and the individual manufacturer, still depends the answer as to whether

(Turn to page 10)

United Air Lines Opens 2,000-Mile Cargo Service

By ERIC BRAMLEY

THE shape of things to come was seen Nov. 1 when United Air Lines inaugurated regular transcontinental all-cargo flights between New York and Salt Lake City.

It marked the first time that an airline has operated a flight this far across the country for the sole purpose of handling this type of traffic.

Aviation circles viewed the flight as the long-awaited first step toward establishment of air cargo on a nation-wide basis.

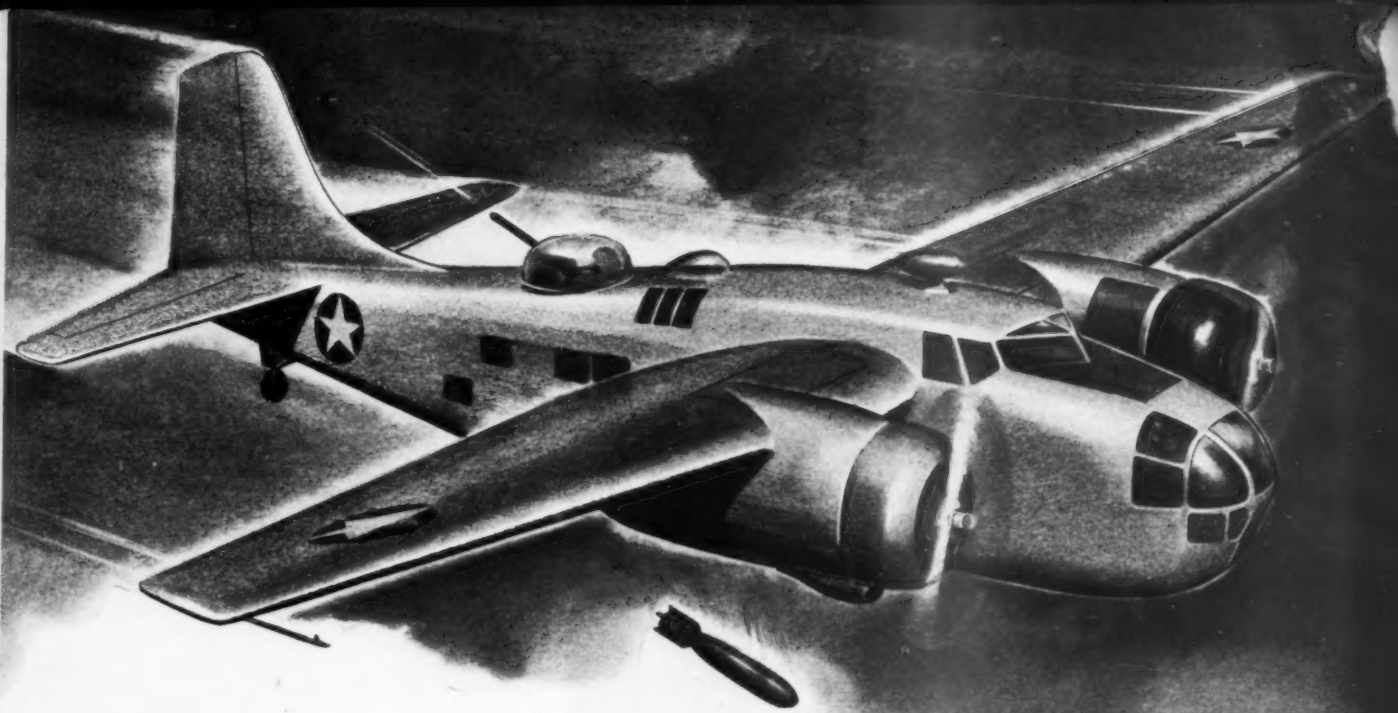
Although there has been plenty of talk during the past few years,

there have been few airline flights within the U. S. devoted to cargo. In 1936, TWA inaugurated a cargo trip from New York to Chicago, offering midnight to dawn service with Ford tri-motors. Lack of traffic necessitated its discontinuance. For a period last year, United operated a similar trip, later discontinuing it. For the past several months, Eastern Air Lines has scheduled an all-freight flight from New York to Miami, with connections for South America. Lack of equipment has stymied further expansion.

Over the 2,000 miles between New York and Salt Lake City, the converted UAL DC-3s used in the

(Turn to page 28)

BLACKSBURG, VA.



We're Proud

TO BE BUILDING THE BOEING AT-15

Soon the *Boeing AT-15* will be rolling off *McDonnell* assembly lines in ever increasing numbers... making its important contribution to the success of future bombing missions. For the AT-15 is a *crew-trainer*—the first airplane specifically designed for the integrated training of bomber crews.

Complete with all essential equipment, this small twin-engined bomber gives flight crews the training in *coordination* and *teamwork* necessary before they take over tactical duties in multi-engined bombardment planes.

Equipped with constant speed propellers, radio compass, automatic pilot, full flight

and radio equipment, flexible machine gun, power turret, and moderate capacity bomb bays, the AT-15 performs all the functions essential to actual combat flying.

Designed and engineered by Boeing to conserve critical materials, the AT-15 is constructed of steel tubing with wood and fabric covered fuselage. Wings and stabilizers are plywood covered.

Yes, we *are* proud to be part of a team designated to build this plane. For thus can teamwork in production contribute to teamwork in the air. Both are essential to victory.



MCDONNELL AIRCRAFT CORPORATION

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Higgins Becomes 2nd Shipbuilder To Enter Aviation, With Army Order

ANDREW J. HIGGINS, New Orleans shipbuilder, announced Oct. 29 that he has been given a verbal contract for Army planes, through the aid of Army Air Forces Materiel Command, thus becoming the second major shipbuilder to enter the aircraft field since Henry J. Kaiser's order for three experimental aircraft was announced Sept. 18.

Unofficial Army sources reported the figure at approximately 1,200 twin-engined planes, similar to the Curtiss C-76 (which is a version of the Curtiss C-46) built of plywood and other non-strategic materials. There was some talk that the planes may be the first U. S. wooden combat aircraft by the time the plan was worked out.

Col. John H. Jouett, who resigned as president of the Aeronautical Chamber of Commerce Oct. 30, is directing Higgins' aviation enterprises.

Although newspapers indicated that Curtiss-Wright had lost its contract for the C-76 to Higgins, Curtiss officials denied this, saying their plans for starting production on the wooden Commando are unchanged, and that operations will begin on schedule in 1943 at their new Kentucky plant.

'Nice Start'

Saying that 1,200 planes "would be a nice start," Higgins refused to discuss the plane which he is being asked to build, but told AMERICAN AVIATION that he was organizing two new subsidiaries of Higgins Industries, Inc.—Higgins Aircraft, Inc., to produce aircraft, and another as yet unnamed, which will "engage in the manufacture of various types of plywood and fibrous substances."

Col. Jouett becomes vice president of Higgins Aircraft, while Victor S. Barnes of Evanston, Ill., who has been sales manager of Baskelite Manufacturing Corp., Chicago, plywood and veneer firm, becomes executive vice president of the unnamed company.

Higgins told newsmen in New Orleans that planes would be rolling off his assembly lines within six months after a formal contract is signed, a claim which was received with some skepticism in aircraft circles.

As in the case of Kaiser's second trip to Washington, Higgins got swift action after President Roosevelt and Donald Nelson took personal interest in the project. A few days after Higgins had a 40-minute interview with the President, Maj. Gen. Oliver Echols, commanding general of the Materiel Command, was en route to Wright Field at Dayton to work out technical problems in connection with giving Higgins an order.

Although expressing himself as pleased at the speed of negotiations,



Given Verbal Contract: Andrew Jackson Higgins, New Orleans shipbuilder, (center), has received a verbal contract for 1,200 cargo planes. On the left is Col. John Jouett, who resigned recently as president of the Aeronautical Chamber of Commerce, to become vice-president of newly-organized Higgins Aircraft, Inc. On the right is Victor S. Barnes, executive vice-president of a new unnamed Higgins company which will engage in the manufacture of various types of plywood and bonded fibrous substances. (A few days after this picture was taken, Barnes terminated his association with the Higgins organization.)

Higgins said he will build any types the government wants, and that he still hopes to produce at least one giant eight-engined monoplane prototype, either landplane or flying boat, designed by an old-timer in aviation, Harry Atwood, who is on Higgins' staff, and who is the inventor of a non-strategic "wood fabric." Atwood's patent on this material has been taken over by Higgins. Plywood specialists in Washington claim that the Atwood development is not suitable for plane construction but that it represents a technical possibility for manufacture of tubing.

Col. Jouett, before election to presidency of the Chamber in January of 1939, was associated with the Duramold division of Fairchild Engine & Airplane Corp., and this experience in the so-called plastic field made him a logical choice for the Higgins project, Washington observers pointed out. It was also understood that the War Department was eager to have a seasoned aviation man in charge of the Higgins program.

Higgins Industries first entered aviation early this year when it took over contracts held by Tucker Aviation Co. of Detroit, for modification and armament installation on aircraft and surface vessels. Preston Tucker, president of the Detroit firm, was an inventor of an early power-driven turret.

Higgins had been in line for a government contract since the one for a large number of Liberty vessels was canceled by the Maritime Commission several months ago.

McCain Receives DSM

Rear Admiral John Sidney McCain, the Navy's new Bureau of Aeronautics chief, was presented with the Distinguished Service Medal on October 31.

Navy Secretary Knox made the presentation on behalf of President Roosevelt with the following citation: "For exceptionally meritorious service in a duty of great responsibility as Commander Aircraft, South Pacific and South Pacific Force. During the period from May 19 to September 21, 1942, and before and during the campaign of the Solomon Islands from August 1 to September 21, 1942, by his courageous initiative and efficient coordination of the forces under his command, Rear Admiral McCain was responsible for the expansion and development of shore and tender bases, the maintenance of scouting and striking flights, and the establishment of effective co-operation between those air units of the United States, Australia and New Zealand assigned to duty on the island bases. His tireless energy and extraordinary skill contributed greatly to occupation of the Guadalcanal-Tulagi Area by our forces and to the destruction and serious damaging of numerous aircraft and vessels of the enemy Japanese Navy . . ."

Putnam in AAF

George Palmer Putnam, husband of the late Amelia Earhart, has entered the Army Air Forces as a captain. He is stationed in Washington, D. C.

2,500,000 for AAF

The Army Air Forces will have 2,500,000 officers and men by the end of 1943, Lieut. Gen. H. H. Arnold declared in an address at Miami Beach, Fla., Oct. 28. This exceeded the previous estimate of 2,200,000 made recently by Secretary Stimson on Capitol Hill in Washington. Arnold said the AAF will have about a third of the total predicted Army strength by the end of next year.

Meigs Resigns WPB Position

Merrill C. Meigs resigned Nov. 15 as deputy director of WPB's aircraft production division. Donald M. Nelson said that he accepted the resignation "with particular regret."

Meigs, the announcement said, has been called back to the Hearst Corp. which loaned his services, without compensation, to the government during the past two years.

He served under both Gen. Knudsen and Nelson as chief of OPM's aircraft branch and as deputy director of WPB's aircraft production division. The announcement of his resignation described Meigs as "one of the first civilians to be summoned by the government for the war service."

Andrews, C. R. Smith Connolly on Newest Army Promotion List

Frank M. Andrews, C. R. Smith, and Donald Connolly were among Army officers nominated by the White House Nov. 2 for temporary promotion to various grades of general.

Maj. Gen. Andrews, commander of the Panama Canal Area, goes up to temporary lieutenant general. Col. Cyrus R. Smith, a Reserve officer, former president of American Airlines and now chief of staff of Army Air Transport Command, becomes a brigadier general, while Brig. Gen. Connolly, former Civil Aeronautics Administrator and later Military Director of Civil Aviation, adds the insignia of a major general. Col. Philip B. Fleming, FWA Administrator, also becomes a brigadier general.

Other promotions in the Air Corps from colonel to brigadier general, Army of the U. S.:

Newton Longfellow, James P. Hodges, Luther S. Smith, Wolcott P. Hayes, Patrick W. Timberlake, John M. Clark, Franklin O. Carroll, Thomas D. White, Aaron E. Jones, Lawrence A. Lawson, Victor H. Strahm, Willis R. Taylor, Benjamin W. Chidlaw, Nathan B. Forrest, Warren R. Carter, Leo A. Walton, Floyd E. Galloway, Gordon P. Saville, James A. Mollison.

Claim RAF Mosquito Bomber is World's Fastest 'Jobs for All'

Author Named
By Chas. Wilson



The new British reconnaissance bomber, the Mosquito, is attracting much attention for its day and night raids in Europe. Not much specific information has been passed by the censors, but it is claimed that this light bomber, which hops, skips and jumps over the countryside at low altitudes, is the fastest bomber in the world.

Four Mosquitos made the Oslo raid in September and easily outdistanced the Focke-Wulf 190s which the Nazis sent up after the raiders.

Most notable feature of the Mosquito (Model DH-98) is its all-wood construction. It is powered with two Rolls Royce engines, and the following dimensions have been released:

Span 54' 2"; overall length 40' 9 1/2"; height (over propeller tip one blade vertically upward tail wheel on ground) 15' 3"; both undercarriage and tail wheel are retractable. It has the de Havilland three-bladed hydromatic type propeller. Offensive armaments are four 20-mm cannon and four .303 machine guns.

Developed by the design staff of the de Havilland aircraft company,

the Mosquito is being built both in England and in Canada.

Apparently the light bomber is very versatile. Its range is estimated at 1200 miles, and it has easily made the 1000 mile trip to Oslo and return with full bomb load. A far cry from the famous DH-4 which de Havilland built in the first World War, the Mosquito is nevertheless of very simple construction throughout, gaining speed from its light weight. No official speed has been given, but it is estimated at 400 mph. or slightly above.

Peter Masefield, air correspondent for the London *Sunday Times*, said in a BBC broadcast on Oct. 26:

"This de Havilland Mosquito is a type of which we're going to hear much more in the future; in fact, it's in a class by itself. Already its exploits show its quality. Mosquitos outdistanced Germany's fastest fighter low down over Oslo. Mosquitos have penetrated far into Germany in daylight to bomb with precision important objectives.

"When you look at its photograph, you'll see something of why it has been so successful. It bears

out the old adage that if an airplane is right, it looks right, and certainly the Mosquito is one of the most beautiful airplanes ever built, with speed in every line of it and a surprisingly formidable bomb load as well.

"Naturally, we can't go into any figures yet, but one can say, without giving anything away, that it's not only the fastest bomber ever built, but one of the fastest airplanes in the world in any category. And for all that, it's one of the nicest airplanes to fly that one could wish. The crew of two sit comfortable side by side with a magnificent view forward, and to see the air speed indicator go up and up is one of the finest experiences that flying holds today. You have to fly a Mosquito to know what flying can be like."

Masefield said the Mosquito was developed from the de Havilland Comet which won the McRobertson air race from England to Australia in 1934.

Oliver Stewart, BBC air commentator, described the Oslo raid on Sept. 29, saying the Mosquito flew low the entire trip, skimming trees and rooftops, and never permitting the Nazi fighters to get below.

Army-Navy Bulletins

Col. Burrows Honored: Col. Paul E. Burrows, AAF, received the rank and insignia of an Honorary Officer of the British Empire (Military Division) in a ceremony at Bolling Field, Washington, Oct. 23. Viscount Halifax, K. G., British Ambassador to the United States, made the presentation in "recognition of the valuable services he has rendered as Liaison Officer between the Ferry Commands of the United States and Great Britain." Lieut. Gen. Henry H. Arnold, Commanding General, AAF, was among high ranking officers present.

Lakehurst Graduates Pilots: Press reports the Lakehurst Naval Air Station has assigned 122 new pilots to active

flight duty. They comprised 63 aviation cadets and 59 officers who had been detached from sea duty. All received the designation of Naval Aviator (airship), and the cadets were in addition commissioned as ensigns in the Naval Reserve. Training period had extended for five months.

Brereton Decorated: Maj. Gen. Lewis H. Brereton, Commanding General, U. S. AAF, Middle East, has been awarded the Distinguished Flying Cross for "extraordinary achievement" as commander of a squadron of six B-17 Flying Fortresses which attacked Andaman Island in the Bay of Bengal on the night of April 13-14, 1942.

Score: 402 to 242

During October, the Axis lost 402 planes in Europe, the Middle East and Great Britain, compared to an Allied loss of 242 planes, including seven Flying Fortresses, according to press reports.

American Flying Fortresses accounted for 70 of 88 planes shot down over Europe, while defenders of Malta claimed 138 of 202 downed in the Middle East.

Blindfold Test

To help train members in navigation over hilly terrain, West Virginia Wing of CAP is using a "blindfold test." Beginners are flown blindfolded 15 or 20 minutes, and an experienced pilot an hour. When cover is removed, trainee must locate position quickly and give the pilot a course to follow back to the airport. Try it on the fellow who says he knows every inch of the countryside.



A WELCOME TO WOMEN

YES, INDEED, something new has been added.

Stewardesses and secretaries, switchboard operators and female accounting clerks have always done a swell job in air transportation.

They're still doing a swell job, but today they have sisters in many other jobs on the airlines.

Radio operators, passenger agents, sales-ladies, engineers, reservations clerks, office girls and others are handling their new work in a friendly, capable manner.

Like all other businesses, United Air Lines is solving its man-power problem by placing alert, cool, competent

young women in those ground jobs formerly filled by men which are suitable to being carried on efficiently by women.

Some of the men they replace are entering the armed forces, while others with key experience and abilities are being moved to those positions in the airline which require men with air transport background.

That means the experienced men in United Air Lines are being reallocated to best advantage, that the company may perform substantially expanded service on the same efficient basis as formerly.

For helping to make this possible, we salute the women—and extend them a hearty welcome.

UNITED AIR LINES

Mfrs. Warned Against Release of Production Data

Aircraft manufacturers were again warned by the War Dept. in a recent release against issuing any statements or reports on finances which would reveal production information.

Specifically, the War Dept. said, that "companies engaged in war production are enjoined from publishing detailed operating statements or other reports which would indicate in any way the rates of production, or the total production, of a particular product used in the prosecution of the war, or war production processes."

Explaining that "it is desired that interference with normal financial procedures be held to a minimum," the statement amplified suggestions previously issued to manufacturers and the press. It stressed the grouping of as many classifications as possible into one lump sum, and made these recommendations: Sales and costs of sales should be omitted when they would disclose production rates or totals of specific war items.

Sales of war items should be grouped in one gross sum; inventories of raw materials, materials in process and finished products should be grouped together; terms of war contracts should not be given; advances on contracts should be stated in one amount, and production processes and new developments which might affect the conduct of the war should not be disclosed.

Disclaiming any intention of setting up rigid regulations, War Dept. believes company executives "will be able to judge the type and scope of information that should be withheld from publication." Release again called company officials' at-

Rickenbacker Still Missing; Hunt in Pacific Continues

Capt. Eddie Rickenbacker was still missing in the Pacific as this issue went to press, but Secretary of War Stimson had stated that the search was continuing.

Capt. Rickenbacker, president of Eastern Air Lines, had been acting as confidential adviser on aviation to the Secretary of War. He had departed on an official inspection trip to the Pacific shortly after returning from a similar trip to the British Isles.

The last message was received from the Rickenbacker plane on the evening of Oct. 23 from somewhere southwest of Honolulu. Only an hour's supply of gasoline remained at that time.

Special searching planes and ships were sent out immediately in an effort to rescue Capt. Rickenbacker and his crew, which included Lieut. Col. Hans Christian Adamson, formerly AAF public re-

tention to the necessity of filing information to be omitted from financial statements according to Rule 171, Securities Act of 1933, Rule X-6, Securities and Exchange Act of 1934, or Rule U-105 of the Public Utility Holding Company Act of 1935.

And finally, business firms are reminded of penalties of the Espionage Act (Act of June 15, 1917, as amended March 25, 1940), which apply even to "inadvertent violations."

Weather Scholarships

Secretary of Commerce is authorized to award 50 scholarships in weather forecasting at universities with accredited meteorological courses by legislation recently signed by the President.

lations officer in Washington.

Since that time, all planes flying in that general territory have been ordered to fan out rather than stay in formation.

Rickenbacker retired from the Army at the close of World War I with the rank of captain. He later joined the Regular Army Specialist Reserve Corps and rose to the rank of colonel. However, he never served as a colonel and that commission lapsed.

Because of injuries sustained in an Eastern Air Lines accident at Atlanta, Capt. Rickenbacker was unable to go on active duty in the present war. He has, however, served the War Dept. in numerous ways, the latest being his special work for the Secretary of War.

In stating that they have not given up hope, AAF officers said that lost flyers have been found alive after 34 days on rubber rafts.

Navy to Share Pentagon Building With Army

The world's largest office building, the Army's new Pentagon Building, has opened its doors to the Navy at the invitation of the Secretary of War.

The Navy will occupy one entire floor, thus enabling the Secretaries of War and Navy and other high ranking Army and Navy officers to work in close cooperation. All Navy bureau chiefs and the public relations bureau will be moved to the new building by Dec. 1. The War Dept. will take over the old Navy building on Constitution Avenue.

Although the Pentagon Building is located in Arlington, Va., the official post office address is Washington, D. C.

Seversky Praises OWI Plane Report

Maj. Alexander P. de Seversky praised the recent OWI report on American combat airplanes, well as the U. S. aircraft industry in his syndicated newspaper column Oct. 29.

The vocal critic declared OWI took the people into its confidence with an attitude satisfying "to anyone who believe that air power may play the leading role in beating the axis . . . The quality and military characteristics of any nation's aircraft reflect its strategic ideas."

"Criticism of shortcomings of any given complement of airplanes is thus at the same time a commentary on the most vital question of all—the kind of strategy on which we are basing our plans for victory."

"The writer concurs fully with the main claim made by the report—namely, that our aviation industry is now making enormous progress . . . Elmer Davis and OWI have done a real service to the war effort in avoiding the usual official double talk on the subject of airplane quality."

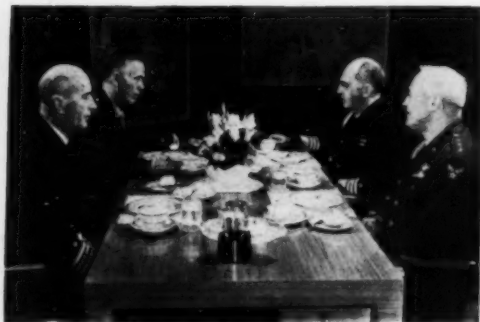
CAP Insurance

Government insurance for CAP pilots is now mainly dependent on the verdict of the Veterans Administration.

Sen. Pepper's (D., Fla.) bill providing National Service Life Insurance for CAP pilots has been referred to the Administration by the Senate Finance Committee which will probably abide by its decision on the matter.

Other bills to provide insurance benefits for CAP pilots, as well as other OCD employees engaged in war work, have been ignored by the House Judiciary and the Senate Finance Committee.

U. S.-British Combined Chiefs of Staff Meet



Official U. S. Navy Photo

Once each week the eight highest ranking U. S. and British Army, Navy and Air officers in this country meet in a conference designed to coordinate the war effort of the two countries. In the center photo, the British members of the Combined Chiefs of Staff, starting second from the left are: Rear Adm. W. R. Patterson (representing Adm. Sir Andrew Cunningham, former commander of the British Mediterranean Fleet); Field Marshall Sir John Dill, former chief of staff of the Imperial General Staff; Brigadier Vivian Dykes, secretary to the British conference; Lieut. Gen. G. N. Macready, former assistant chief of the Imperial General Staff, and Air Marshall D. C. S. Evill, senior Air Staff Officer of the Royal Air Force Fighter Command during the Battle of Britain. Across the table are the U. S. members, starting second from the right: Adm. E. J. King, Commander in Chief of the U. S. Fleet and Chief of Naval Operations; Adm. William D. Leahy,

Chief of Staff to the Commander in Chief, U. S. Army and Navy; Brig. Gen. J. B. Deane, secretary to the U. S. conference; Gen. George C. Marshall, Chief of Staff of the U. S. Army, and the vacant seat to his right is normally occupied by Lieut. Gen. H. H. Arnold, Commanding Officer, U. S. Army Air Forces. In the foreground (left) are Commander The Hon. R. D. Coleridge, and (right) seated next to Adm. King is Vice Adm. F. J. Horne, Vice Chief of Naval Operations. At the far end of the table, left to right, Lieut. Col. T. W. Hammond Jr. and Lieut. Gen. J. T. McNarney, Assistant Chief of Staff, U. S. Army. Gen. McNarney is an airman.

Photo on left shows, left to right, Adm. King, Gen. Marshall, Adm. Leahy and Gen. Arnold at luncheon. In photo on right, Gen. Arnold concentrates on a map of Africa.

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...and a **HELLDIVER** it is!

When, in 1928, Curtiss-Wright built the first carrier-based Navy airplane designed specifically for dive-bombing, its then sensational ability inspired the name, "Helldiver."

Today's Helldiver, the new SB2C-1,

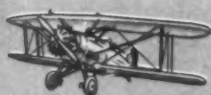
more than ever justifies its name—for its flashing speed and the greater destructive power of its heavier bomb load and deadlier armament have won the rating of "world's best" in the judgment of impartial authorities.

SECOND PRINTING:

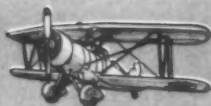
Send 10¢ for your copy of this fascinating 96-page history of aviation by Assen Jordenoff, author of "Your Wings", with illustrations of current fighting types. Airplane Division, Curtiss-Wright Corp., Buffalo, N. Y.



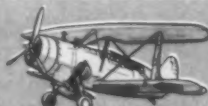
CURTISS-WRIGHT
Corporation
AIRPLANE DIVISION



1928 • First United States Navy Airplane built specifically for dive bombing tactics and carrier operation. Two fixed guns in upper panel and a rear swiveling gun completed the armament.



1935 • Further streamlined, using a twin-row radial engine for higher performance, the now famous Curtiss Helldiver was in use by both the United States Navy and Marines.



1937 • Many squadrons of these high performance SBC-3 dive bombers with heavy defensive armament and completely retractable landing gear saw service in the United States Fleet.



1939 • The SBC-4 powered with a Wright Cyclone, superseded the earlier type and excelled in performance. Planes of this model were still being delivered to the Navy in 1940.

Congress Raises Ceiling on Flying Admirals to 45

By KATHERINE JOHNSON

THE Second Supplemental Appropriation Act recently signed by the President increases the number of flying admirals allowed the Navy from 23 to 45. Until nine months ago the number of flying admirals was limited to 12.

"We are now reaching the limit when admirals may have to lead in air engagements, and to be in the air to direct air and naval operations. . . . We ought to let the Navy have every such officer that it needs," Chairman Walsh (D., Mass.) of the Senate Naval Affairs Committee, told other senators when the question of an increase in flying admirals was before the Senate.

The Army, though, has no limitation on the number of its flying generals and the House had accepted a "rider" in the Second Supplemental Appropriation bill which would have allowed the Army, similarly, an unlimited number of flying admirals. The Senate limitation of 45 was accepted in final action.

Flight Pay Reviewed

In Senate debate there was general agreement that the entire matter of extra pay for flying duty should be reviewed. Several Senators maintained that flying at present is not more hazardous than other military operations and that officers should not receive extra compensation. There was unanimous concurrence that the same policy with regard to flight pay should apply to both services. Some Senators pointed out that naval aviation is being discriminated against by the limitation of the number of its flying admirals and that if these are limited, flying generals should also be limited.

Under-Secretary Forrestal reported to the Senate Appropriations Committee that the number of flying admirals in the Navy during 1943 would be 43.

"We added two more, so as to make it safe. . . . I should like to hold it down to that figure, 45," Sen. Overton (D., La.), chairman of the Navy subcommittee of the Senate Appropriations Committee, stated. Overton has repeatedly blocked attempts to remove the limitation on the number of flying admirals. Overton's position is that flying is not any more hazardous than other naval operations and does not warrant 50% additional pay.

"Why should a flying admiral be paid one and one-half times the amount paid an admiral who is on board some vessel, perhaps subjected to as much danger, or more?" Overton queried.

Would Draw Less

One point is that if the Navy does not give 50% additional flight pay to its aviation admirals, some of their subordinate officers receiving the flight pay would be drawing higher compensation. "If you take the increase away from an admiral, a commander will be getting more pay than he does," Rear Admiral J. S. McCain, Chief of the Bureau of Aeronautics, pointed out. "That is, the admiral will draw less pay than captains and commanders serving under him."

Base pay for the rear admiral is \$6000

a year. Starting base pay for the captain is \$4000; for the commander, \$3500. However, the captain with over 3 years of service to his credit would receive \$4200 (base plus longevity compensation); a commander with 15 years of service would receive \$4364 (base plus longevity compensation). Admirals do not receive extra compensation for longevity of service. Therefore, the captain with 3 years of service to his credit on flight duty would receive \$6200 (without allowances), while his commanding admiral, unless given extra flight pay also, would receive only \$6000. Likewise, the flight commander credited with 15 years service would receive \$6118 (without allowances), while his commanding rear admiral, unless granted flight compensation also, would be receiving only \$6000.

50% of Base

Flight pay is 50% of base pay. Base pay is compensation without allowances or extra compensation for longevity of service. The base pay of Naval officers is: Admiral, \$8000; Vice Admiral, \$6000; Rear Admiral, \$4000 (some, \$3000); Captain, \$4000; Commander, \$3500; Lieut. Commander, \$3000; Lieutenant, \$2400; Lieutenant, j. g., \$2000; Ensign, \$1800. An officer on active duty to qualify for flight pay must spend a minimum of 4 hours per month flying. The same minimum applied to Army officers.

Another victory for Naval aviation effected by the Second Supplemental Appropriation Act is the removal of the stipulation that flying admirals in order to qualify for flight pay must file a certificate stating that extraordinary hazards were incurred during the period in which aerial flights were made. This stipulation placed a burden on admirals of determining just what a hazardous operation was. The assumption was that a special hazard is combat flying. Yet a man may go on combat patrol and never see an enemy.



Eight Ball: Air Forces' glider pilots are always behind the eight ball. Once a pilot yanks this ball, as above, he is freed from the tow plane and is strictly on his own.

DPC Authorizations

Defense Plant Corp., subsidiary of RFC, has recently authorized additional contracts to various firms, as follows: Vultee Aircraft, Inc., Vultee Field, Cal., contract for equipment and machinery in California, to cost more than \$350,000; Menasco Manufacturing Co., Burbank, Cal., additional plant facilities in California, to cost more than \$150,000, and bringing this firm's commitment to more than \$3,000,000; for machinery and equipment to be placed in a plant in Michigan, Chicago Pneumatic Tool Co., New York, N. Y., contract for more than \$140,000, and Romec Pump Co., Elyria, O., for additional plant facilities in Ohio, \$150,000, raising this firm's commitment to more than \$475,000. DPC retains title in each of these

H. A. Bruno Named

Jordanoff Aviation Co., New York City, has announced appointment of H. A. Bruno and Associates, 30 Rockefeller Plaza, also of New York, to handle its public and labor relations.



Official U. S. Navy Photo.

An Enemy Repainted: This speedy-looking pursuit plane is a Japanese Zero (Mitsubishi '00) repainted with U. S. markings. It was shot down and damaged slightly during a battle over the Aleutian Islands. The plane was brought to the U. S., repaired, and is now undergoing tests. "Many features of the Zero—a fast, maneuverable but lightly armored plane—were copied by the Japanese from American aircraft," the Navy states.

Canada Produces 4

Lancaster four-engined bombers; de Havilland twin-engined Mosquito reconnaissance bombers, Curtiss dive bombers and Consolidated PBV flying boats are now in production in Canada, according to press reports.

Parts Production

by Auto Firms

\$4½ Million Daily

Automotive companies are currently producing aircraft engines, airframe sub-assemblies and parts in excess of \$4,500,000 a day, according to the Automotive Council for War Production, Detroit.

Between Oct. 25, 1940 and the same date this year these companies have made and delivered upwards of \$1,000,000,000 in aircraft equipment, including airframes and propellers, ACWP claims.

Almost all of about 1,000 firms are engaged in one phase or another of the aircraft program, Council continues, and "roughly 45% of the dollar volume of the total armaments assignments of the entire industry are in aircraft classifications."

Ten companies are making airframe assemblies, and two others are making ready to produce them. Seven firms are making aviation engines in "mass volume," and two others are in the make-ready stage. Six types of planes "including bombers, fighters, cargoes" are scheduled to be built by auto makers; two are reaching the end of the tooling period. Instruments and equipment such as "flight and fire control . . . aerial cannon and machine guns . . ." are being turned out at others of these plants.

Bombers and fighters "built completely from automotive-made parts" are already in operation, says ACWP.

NAA Publishes Chart

Air Youth division of the National Aeronautic Association, 1025 Connecticut Avenue, N.W., Washington, D. C., has announced the following charts available: A.Y.D. chart No. 1, parts of a plane (nomenclature). This identifies 21 parts of a standard light plane. It is 24 x 36 inches, and costs 10c. A.Y.D. chart No. 2, and A.Y.D. chart No. 3, both military aircraft silhouettes, for teaching aircraft identification. They have three-view silhouettes of the principal types of military aircraft of United Nations and the Axis, and include a nomenclature section for the parts of military planes. 22 x 34 inches. 15c each.

Mobley Joins Turner

Robert L. Mobley has been appointed director of public relations at the Roscoe Turner Aeronautical Corp., Indianapolis, Ind., according to press announcement. He will help Col. Turner to develop the firm's education program.

New Materials Plan

(Continued from page 1)

the American aircraft industry will be permitted to step up its production rate nearer the capacity of its physical plant.

After receiving the green light from the top, the important Requirements Committee of WPB, Ferdinand Eberstadt in active charge, will be able to set to work designating available materials for specified uses in the proportions necessary under the blueprint, and leave to the government agencies concerned the problem of allocating the supply they receive to their prime contractors.

Prime manufacturers expect to be swamped with additional paper work since each must do materials bookkeeping for its subcontractors. As this was written aircraft officials still were in doubt as to how they would meet the problem.

Refuses Comment

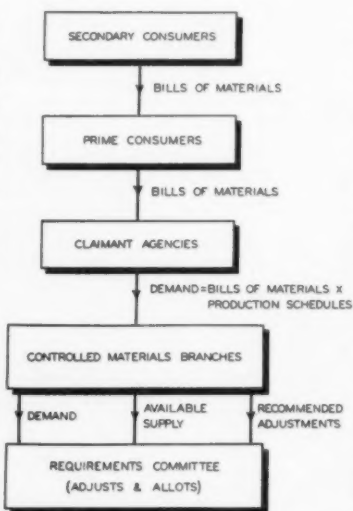
Donald Nelson, WPB chairman, refused to comment Nov. 2 on which categories of weapons hold top place in the 1943 program, although a few minutes earlier in the special press conference, held to announce CMP, he had mentioned planes and ships, in that order. Washington observers believe WPB at that time had not received definite information from top side on this matter.

Nelson promised a fuller statement on aircraft production "shortly." He did say, however, that he has delegated all of his powers over aircraft to Charles E. Wilson, new vice-chairman of WPB in charge of production.

Nelson told pressmen that "We think this plan is the best plan. Only experience will bring out the bugs in it. We have had as advisers the leading experts in this country and England, including representatives of the air forces."

Ferdinand Eberstadt, WPB vice-chairman in charge of program determination, warned that CMP is certain to undergo revisions, but that it will be kept flexible at all times. It will be nearly eight months before full effect can be observed. Significantly, perhaps, he made the blunt assertion (mostly ignored by the press stories) that "If this plan fails, industry will be to blame." While CMP gets underway, PRP and some priorities will remain.

FLOW OF REQUIREMENTS FOR DEMAND



Illustrating the complexity of the job ahead of them, Nelson said that one Consolidated B-24 has 900,000 pieces of 45,000 different types. He foresaw an "appreciable" increase in over-all production under the system, forecasting that the nation will reach maximum output before July, which frequently has been mentioned as the first top-production month.

Eberstadt, who has for months been in close touch with directives from the high command, in his position of chairman of the diminishing Army-Navy Munitions Board, emphasized that one of the



PRP Clerks: More than 1,300 workers, in three shifts, were employed in October at the peak of 4th quarter Production Requirements Plan forms for 30,000 companies, according to OWI. This big room is in the basement of the New Social Security Building which the Social Security Board workers never saw because WPB and its predecessors took possession upon the structure's completion. The new Controlled Materials Plan (CMP) is not fully effective until July 1, 1943.

most important features of the new plan is that it forces preparation of definite programs, in advance, for construction, civilian supply, Army, Navy, Maritime Commission, etc. This strong statement was interpreted in Washington as another acknowledgment that the top commands have been reluctant to chart their course ahead.

Asked about monopoly phases of the new production program, Nelson said WPB is checking constantly with the Attorney General in granting anti-trust exemption to designated manufacturers to further the war effort. He also made clear again that WPB has full right, and will use it, to dictate to industry and individual companies what they will build.

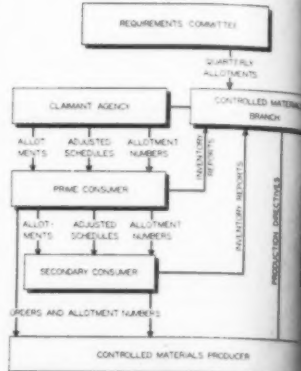
Further allotment to smaller aircraft companies to build standard combat models of other manufacturers is anticipated.

Because of the importance to industry of the system, and the fact that official copies of the complete plan were delayed at the Government Printing Office, AMERICAN AVIATION publishes the full text of the press announcement issued Nov. 2. It follows:

A long-range plan for controlling the flow of critical materials into war production, the Controlled Materials Plan, was announced today by Donald M. Nelson, chairman of WPB.

Evolved from existing distribution systems and from experience gained through their operation, the CMP has the approval of all governmental agencies participating in it. It was drafted after lengthy conferences with the Army, Navy, Maritime Commission and Office of Civilian Supply as well as representative consumers and producers of materials who contributed many suggestions incorporated in the final version.

FLOW OF ALLOTMENTS FOR SUPPLY



The main purpose of the plan is to make certain that production schedules are adjusted within material supply that production requirements are met. This will be accomplished by:

Adjusting requirements for critical materials to the supply; Making the quantity and type of materials needed available at the time required to meet approved programs. Allotments of critical materials will be made through seven Claimant Agencies, such as Army, Navy, Office of Civilian Supply, etc., to prime contractors producing essential goods. Prime contractors, in turn, will divide allotments with their subcontractors and suppliers.

3 Critical Materials

Carbon and alloy steel, copper and aluminum—the three most basic critical materials—are the first "Controlled Materials" to be directly allotted under the plan, which becomes effective, in its transitory stage, in the second quarter of 1943 and will be in full operation by July 1.

This method of distributing materials is, in effect, "vertical allotment." As far as Controlled Materials are concerned, it will gradually replace the present priority system, including the Production Requirements Plan, which operates on a horizontal basis.

Under PRP each firm, large or small, prime contractor or subcontractor, submits his own requirements to WPB for approval, and receives an individual authorization to obtain materials.

Under the new CMP, prime contractors will prepare and submit a breakdown of all materials required for approved end-products on which they are working. The breakdown will comprise a "Bill of Materials" specifying not only what materials are required but when they must be received to carry out the authorized program.

In making up his Bill of Materials each prime contractor will include the materials he puts into products himself, and those needed by his subcontractors and their suppliers. The Bill of Materials will cover requirements not only for Controlled Materials but also for other scarce materials listed in the outline of the plan.

The Bills of Materials obtained from prime contractors will be assembled by each Claimant Agency and submitted to the WPB Requirements Committee and to the respective Controlled Materials Branches, which will make necessary adjustments to bring the program into balance with available supplies.

The Claimant Agencies are: Army, Navy, Maritime Commission, Aircraft

(Turn to page 12)



"We shall hit him, and hit him again"

OVER the seven seas bad news is winging to the enemy who thought America too soft to fight.

He's had an inkling of it already over New Guinea, Tokyo and Midway Island, and he found it gall.

At bitter cost in ships and planes and men he's learned what a mere handful of American fighters and bombers can do against tremendous odds.

Yet these were but the vanguard—the skirmishers of our first line of offense now marshaling on a dozen fronts to smite him wherever he may be.

For today America is building more airplanes every month than Germany, Japan and Italy combined, and production is fast mounting to the President's goal of 60,000 airplanes, this year.

To keep that tide flowing, hundreds of great plants like those of Goodyear Aircraft are now working night and day, seven days a week, in the world's largest cooperative mass-production program.

Our part at Goodyear Aircraft is building subassemblies—wing, tail and fuselage units; cabin sections; wheels, brakes

and other parts for fleets of America's fastest fighters and largest bombers.

More than that, Goodyear aircrafters have pledged the nation they will do their utmost to help beat the 60,000-airplanes-this-year schedule.

And to hit the enemy where he is dead-

liest, we are producing squadrons of lighter-than-air ships—the famous Goodyear blimps used by the Navy to track down U-boats.

Into this work we are concentrating all the air-skill Goodyear has acquired in more than thirty years' close association with the development of both heavier- and lighter-than-air transportation.

Into it are going all our hopes of the future in which aviation will assume its rightful place as a bond of brotherhood and commerce among all nations.

But before anything else, now we are building for victory.

Nothing less will make life, liberty and pursuit of happiness secure in this world again.

HOW GOODYEAR AIRCRAFT CORPORATION SERVES THE AIRPLANE INDUSTRY

1. By building parts to manufacturers' specifications.
2. By designing parts for all types of planes.
3. By re-engineering parts for mass production.
4. By extending our research facilities to aid the solution of any design or construction problem.



Materials Plan

(Continued from page 10)

Scheduling Unit, Lend-Lease, Board of Economic Warfare and Office of Civilian Supply.

The Aircraft Scheduling Unit, located at Wright Field, is the Claimant Agency for all aircraft production.

The Office of Civilian Supply, Claimant Agency for all producers not otherwise represented, will assemble its statement of requirements with the aid of recommendations by the various WPB industry branches.

Each Claimant Agency will break down its submission of requirements into materials for (1) production; (2) construction and facilities; (3) maintenance, repair and operating supplies. Requirements for construction and facilities, including industrial machinery and equipment, will be channeled through the Construction and Facilities Branch of the Office of Program Determination.

When requirements have been brought into balance with supply and the programs of the various Claimant Agencies are approved, the WPB Vice Chairman on Program Determination—who also is chairman of the Requirements Committee—will allocate with the advice of the Requirements Committee, authorized quantities of the three Controlled Materials to each.

Allotment Numbers

The Claimant Agencies, in turn, will distribute these broad allotments among prime contractors by means of "Allotment Numbers," which will constitute a right to receive delivery. The prime contractors will pass on the Allotment Numbers as necessary to their subcontractors and suppliers.

Materials other than Controlled Materials will continue to be distributed through the priorities system. Each company receiving an Allotment Number carrying an allocation of Controlled Materials also will receive a preference rating for use in obtaining other materials. A preference rating accompanied by an Allotment Number will be higher than other ratings of the same category, but will not take precedence over higher ratings. For example, AA-3, plus an Allotment Number, is higher than AA-3, without the number, but not as high as AA-2X. The preference ratings also will resolve conflicts which might otherwise occur in the production and delivery of manufactured items.

In order that sufficient amounts of materials in the form desired may be available, responsibility for directing the production of Controlled Materials rests in the Controlled Materials Branches of WPB. For instance, the Iron and Steel Branch is responsible for steel, the Copper Branch for copper, etc. "Production Directives," specifying the quantities and forms and shapes of material to be produced during a stated period of time, will be sent to most producers of Controlled Materials monthly. If orders beyond a specified capacity to produce are received, a producer must refuse them and notify the appropriate Controlled Materials Branch. If a consumer with an Allotment Number cannot place his order satisfactorily, he should appeal to and will be assisted by the branch.

It was explained that the aim of the plan is to use every bit of critical material in the place where it will do the most good toward winning the war. Each governmental agency participating in the plan, therefore, is being required to present programs for approval which will lead to the maximum production of the things needed most from the materials available in any given period of time.

Each of these Claimant Agencies will be responsible for constructing a pro-

September Plane Value Exceeds August By 10%

Value of American aircraft produced in September was 10% over August, with a large numerical increase in heavy four-engined models, Donald Nelson reported Nov. 1. Heavy bombers were "nearly on schedule," while proportion of light aircraft decreased. From a standpoint of plane units, there was a "small overall increase."

August aircraft valuation has been revised to show a 5% gain over July, the WPB chairman asserted.

Value of ordnance output was up 7% in September over August, while naval and army vessels were up 22%, and merchant ships up 10%.

Nelson made special note, in commenting on aircraft, that "propeller production continues to present a serious problem." He

warned, further, that "plane production may increase in the months ahead more rapidly than propeller production, unless propeller output can be greatly increased. Thus far, however, enough propellers have been made to fly all planes."

"Mass production methods have been greatly improved; may engineering difficulties have been overcome; skills of new workers are being improved and training is proceeding well. Some plants that have come into production recently are making exceptionally good showing—much better than early experience had led us to anticipate, and the number of months in which these plants were under construction before they turned out a plane was much less than the time taken to construct and bring into operation the first new plants in the war effort."

gram making the best possible use of the materials allotted to it toward winning the war. At the same time, the plan provides centralized control over the division of materials among the agencies and appropriate accounting so that no agency nor contractor can overdraw its allotment.

As CMP goes into effect, the job of cutting out all non-essential production, military and otherwise, will be completed.

Under CMP, each Claimant Agency will program the quantities of end-products—guns, planes, Liberty ships, railroad cars, bedsprings, etc.—most urgently needed for each quarterly period. From the Bills of Materials for each of these items the agency will make up a consolidated estimate of its total requirements. These detailed estimates for the second quarter of 1943 must be submitted by January 1, 1943. At the same time, similar estimates must be submitted for the remaining quarters of 1943 and the first quarter of 1944, together with general estimates for the first half of 1944, so that the Requirements Committee will have at all times a general picture of requirements eighteen months in advance.

When the allotments are made by the Requirements Committee, they will be transmitted to prime contractors through the Claimant Agencies. Manufacturers working on items such as tanks, ships, aircraft, etc., which generally are contracted for by or through a Claimant Agency, and are called "Class A" products—will receive their allotment with

an allotment number directly from the agency. Producers of a list of "Class B" products, such as generators, hardware, kitchenware, electrical appliances, parts frequently incorporated in other products, and civilian items generally, will receive their allotments from their WPB industry branches, which in turn will receive allotments through the Office of Civilian Supply.

Each Claimant Agency may allot for each month up to 105 per cent of its monthly allotment. This over-allotment is intended to stimulate increased production from producers of Controlled Materials. Claimant Agencies also are authorized to make allotments for future quarters on the basis of declining percentages of allotments established for the current quarter. These percentages are: for the quarter immediately following the one for which a definite allotment has been made, 80 per cent; for the next following quarter, 60 per cent; for all later quarters, 40 per cent.

The plan will be flexible enough to permit limited amounts of material to be given out without allotment numbers. Special provision, for instance, is made for allotments of Controlled Materials to warehouses so that they may handle small orders without Allotment Numbers.

A new form of inventory control is to be established with the requirement that every primary or secondary producer whose inventory of all Controlled Materials is in excess of a specified amount must submit an inventory statement showing his position at the end

Freeman Appointed

Air Chief Marshal Sir Wilfrid Freeman, formerly vice chief of air staff of the RAF, has been appointed chief executive at the Ministry of Aircraft Production, to coordinate and direct production, research and development of aircraft.

American Republics Staff

Division of American Republics Aviation, of the Defense Supplies Corp., in charge of government aviation activities in Central and South America, is directed by Reed M. Chambers, vice-president; For Studebaker, aeronautical consultant; William B. Graham, chief of construction, and John Sheridan, administrative assistant. Office: Commonwealth Building, Washington, D. C.

of each calendar quarter not more than 15 days later.

A time table for the transition from existing systems to full operation of the Controlled Materials Plan is provided. The first Bills of Materials will be assembled by the Claimant Agencies during November and December and on Jan. 1 the agencies will submit their first estimate of requirements to the branches handling Controlled Materials with copies to the Requirements Committee.

Will Analyze

By Jan. 15 the Controlled Materials Branches will have analyzed the requirements and made preliminary recommendations to the extent possible between requirements and supply. At the same time, the Claimant Agencies and prime consumers will be developing information necessary in making final allotments, to be in readiness for distribution of allotments to them by the Requirements Committee.

On Feb. 1, the Requirements Committee will make allotments of Controlled Materials to Claimant Agencies for the second quarter of 1943. During February and early March, distribution of allotments will be made by Claimant Agencies to prime consumers, who in turn will divide their allotments with their secondary consumers and suppliers.

By Mar. 15 users of Controlled Materials will have placed authorized orders for April delivery and for later months, as authorized. Subsequently the Controlled Materials Branches will watch placement of orders on mills and mills' shipments, and give assistance in placing orders to authorized users of Controlled Materials who are unable to obtain mill acceptance of authorized orders.

On July 1, CMP will be in full operation. Until that time existing procedures, including preference ratings and PRP certificates and individual material allocations under M orders will continue in effect for consumers who have not been able to qualify under CMP.

Those remote secondary consumers who have not obtained their allotment under CMP in time to meet requirements for the second quarter of 1943 will be authorized to continue purchases under PRP equal to their first quarter authorizations.

To prevent duplication, each consumer operating under PRP will be required to cancel authorizations made under PRP in equal amount for CMP allotments and the total authorizations outstanding at any time will not be permitted to exceed available supply. Orders bearing CMP Allotment Numbers will be given preference at all over PRP orders and other rated orders not under CMP.

CMP will be supplemented by detailed regulations and instructions to be announced at a later date.



Official U. S. Navy Photo.

Mud and Water: Some idea of the difficulties encountered in Alaskan flying can be gained from this photo. Surrounded by mud and water, these Navy patrol planes have been battered down by a ground crew behind hastily thrown up revetments. Wing pontoons are tied down and a barrier has been placed in front of the forward wheel of the undercarriage.

Launching THE AIR AGE



The great ships of the air, succeeding ocean liners down the launching ways, will ply the boundless ocean of space — crossing land and sea to carry cargoes directly to port of destination on the fastest ton-mile basis. Such huge transports rely on power by Wright.

WRIGHT *Aircraft Engines*

POWER THE TONNAGE OF THE AIR



Service in Action

Over the far Pacific, through the icy blasts of Alaska, and above the Sahara sands—on a score of widely separated fronts, American planes, fabricated with Boots Self-Locking Nuts, are meeting the severest test of all—war.

And Boots nuts play their humble though important part in getting our planes out to their objectives and back. For they are not ordinary nuts. Born in an era of mass plane production, these ingenious, all-metal, self-locking devices are a time-saving boon on the assembly line. They are lighter, safer, vibration-proof and literally "outlast the plane." Send for new catalogue. Correspondence should be addressed to general offices, not to factory.

- ① Grumman Wildcat F4F-3
- ② Boeing Flying Fortress B-17E
- ③ North American B-25
- ④ Curtiss Commando, C-46
- ⑤ Consolidated Liberator B-24E

- ⑥ Curtiss P-40
- ⑦ Curtiss Dive Bomber SB2C-1
- ⑧ Edo Floats
- ⑨ Plywood Planes
- ⑩ Brewster Buccaneer

A few of the planes fabricated with Boots Self-Locking Nuts

Boots Self-Locking Nuts For Application In All Industries

BOOTS

BOOTS AIRCRAFT NUT CORPORATION
General Offices: New Canaan, Connecticut

LOCKING
PRESSURE
ELIMINATES
PLAY



HOW IT WORKS

The Boots Self-Locking Nut is one-piece, all-metal—withstanding severest vibration. The top (locking) section is displaced in a downward direction so that its locking threads are out of lead with the load carrying threads of the lower section.

Upon the insertion of a bolt, the top section of the nut is extended to engage with the threads of the bolt. A constant force is thus established which locks the nut firmly into position without damaging bolt or nut. Axial thread play is eliminated.

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Army-Navy Bulletins

Chamber Reorganization

(Continued from page 1)

Add Production Awards: Firms to receive the Army-Navy Production Award are as follows: Armstrong Cork Co.; Federal Products Corp.; General Motors Corp., New Departure division, Plants A and D; Pioneer Parachute Co., Inc., and U. S. Rubber Co., Iowa plant.

Safety Committee Established: An advisory safety committee, to assist the Safety Section of the Internal Security Division, Office of the Provost Marshal General, Services of Supply, has been set up, War Dept. discloses. Purpose is to give further help in "installations and plants producing war materials." H. W. Heinrich heads the three-man committee.

Add Production Awards: Among plants recently receiving the joint production award were: American Optical Co.; The Aviation Corp., Lycoming division; Otis Elevator Co., aeronautical division; Summerill Tubing Co.; Switz Parachute Co.; Titanline, Inc.; Tite Metal Hose Co., and the S. S. White Dental Manufacturing Co.

Air Inspector: War Dept. has created the Office of Air Inspector, Materiel Command, AAF, Maj. William O'Dwyer, formerly in the Plant Protection Branch, Materiel Command, has been assigned Acting Air Inspector.

Women Radio Technicians: Army Signal Corps will start a class of 55 student operators and 28 student repairmen Nov. 30 at the Midland Radio and Television Schools, Inc., Kansas City, Mo. These students will be selected from WAAC's in basic training at Fort Des Moines, Iowa. Graduates from Midland will replace enlisted men as radio operators and radio mechanics in AAF headquarters companies. Candidates for radio operator will receive 12 weeks' training, and those for radio mechanic eight weeks.

Infantry Uses Gliders: War Dept. reveals Divisional Infantry troops of Army Ground Forces will use gliders for the first time in air-borne maneuvers in progress (on Oct. 22) near Fort Sam Houston, Texas. These troops are reported to have been working in conjunction with the Troop Carrier Command, AAF, and with the Army Ground Forces' Air Borne Command, for the last several weeks.

Add Construction Awards: War Dept. has announced additional construction awards, as follows: AAF Installation, Florence County, South Carolina, to cost in excess of \$1,000,000; AAF installations at Congaree, S. C., and at Madras, Ore., each to cost in excess of \$1,000,000, and AAF installation at Topeka, Kan., to cost in excess of \$300,000.

Observers Assigned: War Dept. has posted six officers in combat areas to report conditions to Gen. George C. Marshall, Chief of Staff, according to the Press. Maj. Gen. Thomas C. Handy, Chief of Operations, is in immediate command of these men. Their names and assigned zones are: Col. Russell Reeder, New Guinea; Col. John C. Upston and Lieut. Col. Devere T. Armstrong, Middle East; Col. Thomas A. Timberman, China, India, and Burma, and Col. Leonard H. Rodieck and Edward H. McDaniel, Southwest Pacific.

Mechanics, 45-50: War Dept. has announced it will accept, for AAF, mostly for service installations and field units, experienced mechanics, aged 45-50, even though they have minor physical defects.

Aeronautical Corp., Lockheed Aircraft Corp., Vega Aircraft Corp., and the Glenn L. Martin Company. Another resignation, Bell Aircraft Corp., was made out but not submitted. The only large airframe manufacturer definitely determined to remain was Boeing Aircraft Co.

At the board of directors meeting Oct. 30, Consolidated Aircraft Corp. and Vultee Aircraft, Inc., withdrew their resignations pending consideration of a reorganization plan, but others resigning are still technically out of the Chamber, although the technicalities will be removed in due course if the reorganization plans are successful.

The resignation of Col. John H. Jouett as president was received simultaneously with company resignations, and Col. Jouett announced that he was joining Higgins Aircraft, Inc.

The Chamber crisis did not arise out of personalities, and no request was made (or apparently wanted) for the resignation of Col. Jouett, who took the step voluntarily. Neither was the crisis a result of disunity in the industry itself, for all members stated they wanted a unified trade association. The trouble was purely in the antiquated organizational structure of the Chamber and the dissenters decided only resignations could force the issues at stake.

The resigned companies represented about 75% of the total dues of the Chamber, but most of them committed themselves to an average of a quarter of their annual dues to tide the Chamber over during the reorganization period. In addition, the Chamber was revealed

to have a substantial bank account over current expenses, so no financial problem is involved.

Dissatisfaction with the Chamber seemed to be widespread and fundamental. Some companies said they weren't getting value received for their heavy assessments, while others said the Chamber was too cumbersome to be efficient. The demand for streamlining, and clarifying of its various functions, seemed universal. The large airframe manufacturers, particularly, want a unit which speaks and acts for their special interests, but they also want a broad general organization on the promotional side representing all aviation interests.

The Oct. 30 board of governors meeting accomplished little except to create a special committee headed by Edgar N. Gott, vice-president of Consolidated Aircraft Corp., to work up a reorganization plan. Included on the committee were representatives of Boeing Aircraft Corp., Bendix Aviation Corp., Douglas Aircraft Corp., United Aircraft Corp. and a few other companies. Richard H. Depew, Jr., vice-president of Taylorcraft Aviation Corp., represented smaller companies. The committee worked for three solid days before arriving at a set of recommendations, details of which were not available at this writing.

Another meeting of the board of governors will be called shortly to discuss and consider the recommendations, and the entire plan will probably go before the membership on Dec. 3.

No official discussions have been held on a successor to Col. Jouett pending the reorganization.

Randall to Manage East Coast Council

I. S. "Stick" Randall, assistant to the chairman of the board of TWA, Inc., has been named general manager of the Aircraft War Production Council, East Coast, Inc., it was announced Oct. 27 by Guy W. Vaughan, president of the council and president of Curtiss-Wright Corp.



Randall

Randall assumed his duties immediately and flew to the west coast to confer with members of the Aircraft War Production Council, Inc., comprised of eight airframe manufacturers in

Southern California.

Mr. Vaughan said Randall will correlate activities of the new organization of eight eastern aircraft manufacturers who have pledged themselves to an all-out program of mutual assistance to speed the war effort.

Randall has been acting as eastern regional manager of TWA. He has been president of the Sales Executives Club and the Advertising Club of New York, and was president of the aviation exhibit at the New York World's Fair. Prior to joining TWA he was a sales executive of General Foods. He served in the first World War as a captain in the 1st Division and is a member of the board of the National Aeronautic Association.

Temporary headquarters of the eastern council are being established at 30 Rockefeller Plaza, New York City.

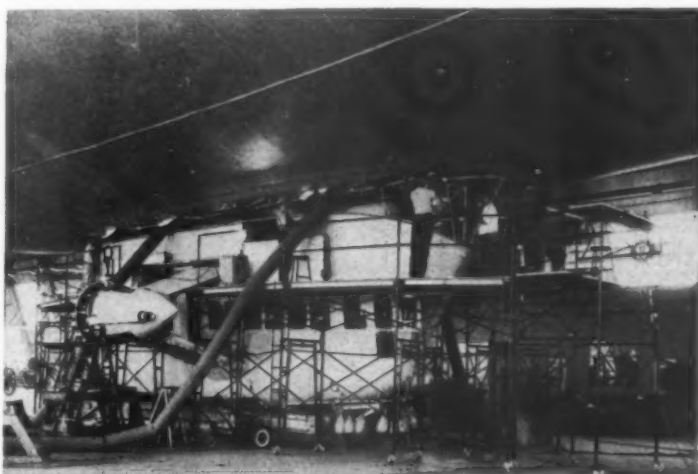
Civil Briefs

CAP Cadet Units: First CAP Cadet Squadron has been reported formed from CAP's Minnesota Wing. At Central High School, Minneapolis, 39 students in an aeronautical course were signed up as cadets. They are attached to CAP Squadron 711-4. In St. Paul, at the Cretin High School, another group is said to be forming, which will be attached to Squadron 711-3. Another group is reported to be in preliminary stages in Augusta, Ga. insignia reported to date include a plastic collar marker, which has passed the design stage, and a shoulder emblem, which will be the same as for senior members of CAP, but with the word cadet below.

Clergymen Fly: Squadron at Ithaca, N. Y. reports 39 clergymen, most of them pilots, are active in CAP there.

Sees Post-War Air Boom

Chairman Truman (D., Mo.) of the Senate Committee Investigating the Defense Program claims that there will be only a short temporary post-war unemployment in the aircraft industry during the transition from war to peacetime production. Other industries, he points out, will have a more difficult time in reverting to peacetime conditions.



Speeds Blimp Assembly: This new scaffolding surrounding the gondola of a new blimp in the Wingfoot Lake hangar of Goodyear Aircraft Corp., Akron, was especially adapted to save many hours in the assembling of each new blimp for the Navy. Replacing a previous system which required "horses" and planks, the scaffolding is merely rolled away after each new blimp is assembled.



FASTEST, FIGHTIN'EST PLANE *"the Havoc"*

The Douglas A-20 "Havoc" has been termed the most vicious, versatile airplane of the war. Also known in Britain as the "Boston," it is used as an attack bomber, torpedo bomber, night fighter, long range fighter, pursuit, interceptor, intruder. For three years the "Havoc"

has been the scourge of the Axis on every front. And no enemy craft has yet matched it! So, America, your aircraft industry has out-designed and is now out-producing our enemies. Yankee ingenuity will win! Douglas Aircraft Company, Inc.; Santa Monica, Calif.

DOUGLAS

Member, Aircraft War Production Council, Inc.



DOUGLAS BUILDS...BOMBER-FIGHTERS: THE A-20 "HAVOC" AND "BOSTON" • A-24 "BANSHEE" • SBD "DAUNTLESS" • TBD "DEVASTATOR"
WAR TRANSPORTS: THE DC-3 AND C-47 "SKYTRAIN" • C-53 "SKYTROOPER" • C-54 "SKYMASTER"

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Smithsonian Recognizes Wright Plane As First Capable of Sustained Flight

Retraction Opens Way for Return of Plane to U. S.

THE 28-year-old controversy between Orville Wright and the Smithsonian Institution over who invented and built the first airplane capable of sustained heavier-than-air flight is ended.

On Oct. 24 the Smithsonian Institution published a document, retracted by its secretary, Dr. C. G. Abbot, retracting the claims it had previously made, and accepting the claims, without qualification or reserve, made by Orville Wright. Dr. Wright has accepted the Smithsonian report.

Thus comes to a close the long and most famous controversy in aviation history.

The way is now open for the return of the original Wright plane to this country. Because of the Smithsonian claims made in 1914, Orville Wright loaned his original plane to the British Museum in London in 1928. Mr. Wright is not obliged to place the historic plane in the United States National Museum, which is part of the Smithsonian Institution, but the Institution has stated that if he decides to place it there "it would be given the highest place of honor, which is its due."

Langley Modified

Orville Wright, now 71, and his brother, the late Wilbur Wright, made the first sustained airplane flights at Kitty Hawk, N. C., Dec. 17, 1903. But earlier that year Samuel Pierpont Langley had attempted to fly his "Aerodrome" machine and failed. In 1914 the Smithsonian Institution contracted with Glenn H. Curtiss to attempt flight with the Langley machine, but Curtiss considerably modified it before making the flight.

However the Smithsonian exhibited the Langley machine with a label stating that this machine, because it had flown eventually, was the first heavier-than-air machine capable of sustained flight, but neglected to say that it had been modified. The Smithsonian now makes clear that the Wright machine was the first, and that many modifications were made to the Langley machine before it flew in 1914.

With due credit to Dr. Abbot, who inherited the controversy, and who has been successful in bringing the dispute to a close, he changed the Smithsonian label in 1938 to state that the Langley machine had been restored.

Many organizations have endeavored to reach an agreement

Comparison of the Langley Machine of 1903 With the Hammondsport Machine of May-June, 1914

LANGLEY, 1903	WINGS	HAMMONDSPORT, 1914
1 SIZE: 11' 6" x 22' 6" (L.M. p. 206)	SIZE: 10' 11 1/4" x 22' 6"	SIZE: 10' 11 1/4" x 22' 6"
2 AREA: 1040 sq. ft. (L.M. p. 206)	AREA: 988 sq. ft.	AREA: 988 sq. ft.
3 ASPECT RATIO: 1.96	ASPECT RATIO: 2.05	ASPECT RATIO: 2.05
4 CAMBER: 1/12 (L.M. p. 205)	CAMBER: 1/18	CAMBER: 1/18
5 LEADING EDGE: Wire 1/16" diameter (L.M. Pl.66)	LEADING EDGE: Cylindrical spar 1 1/2" dia. at inner end, tapering to 1" dia. at outer end.	LEADING EDGE: Cylindrical spar 1 1/2" dia. at inner end, tapering to 1" dia. at outer end.
6 COVERING: Cotton fabric, not varnished.	COVERING: Cotton fabric, varnished.	COVERING: Cotton fabric, varnished.
7 CENTER SPAR: Cylindrical wooden spar, measuring 1 1/2" dia. for half its length and tapering to 1" at its tip. (L.M. p. 204). Located on upper side of wing.	CENTER SPAR: Cylindrical spar about 1 1/2" dia. at inner end, tapering to about 1" dia. at outer end. Located on upper side of wing. This center spar was reinforced (1) by an extra wooden member on the under side of the wing, which measured 1" x 1 1/2" and extended to the 7th rib from the center of the machine; and (2) by another wooden reinforcement on the under side extending out about one-fourth of the length of the wing.	CENTER SPAR: Cylindrical spar about 1 1/2" dia. at inner end, tapering to about 1" dia. at outer end. Located on upper side of wing. This center spar was reinforced (1) by an extra wooden member on the under side of the wing, which measured 1" x 1 1/2" and extended to the 7th rib from the center of the machine; and (2) by another wooden reinforcement on the under side extending out about one-fourth of the length of the wing.
8 RIBS: Hollow box construction. (L. M. Plates 66.67)	RIBS: Most of the original Langley box ribs were replaced with others made at Hammondsport. (Mainly letter, 1914). The Hammondsport ribs were of solid construction and made of laminated wood. That part of the rib in front of the forward spar was entirely omitted.	RIBS: Most of the original Langley box ribs were replaced with others made at Hammondsport. (Mainly letter, 1914). The Hammondsport ribs were of solid construction and made of laminated wood. That part of the rib in front of the forward spar was entirely omitted.
9 LOWER GUY-POSTS: A single round wooden post for each pair of wings (see Fig. 3), 1 1/4" in dia. 6 1/2' long. (L.M. Plate 62, p. 184).	LOWER GUY-POSTS: Four for each pair of wings (see Fig. 4), two of which were of streamline form measuring 1 1/4" x 3 1/2" x 54" long; and two measuring 2" x 2" with rounded corners, 3' 9" long.	LOWER GUY-POSTS: Four for each pair of wings (see Fig. 4), two of which were of streamline form measuring 1 1/4" x 3 1/2" x 54" long; and two measuring 2" x 2" with rounded corners, 3' 9" long.
10 The front wing guy-post was located 28 1/2" in front of the main center spar. (L.M. Plate 53).	The front wing guy-posts were located directly underneath the main center spar, 28 1/2" further rearward than in 1903.	The front wing guy-posts were located directly underneath the main center spar, 28 1/2" further rearward than in 1903.

(Turn to page 19)

between the Institution and Orville Wright, and even several Presidents were interested. But Orville Wright would not budge until the Smithsonian formally and emphatically accepted his claims. It was a hard pill for the staid and rugged Smithsonian to swallow but it finally did so.

Because of the historic nature of the controversy, the entire text of the Smithsonian document (No. 3699) is reprinted herewith:

THE 1914 TESTS OF THE LANGLEY "AERODROME"

By C. G. ABBOT
Secretary, Smithsonian Institution

NOTE—This paper has been submitted to Dr. Orville Wright, and under date of October 8, 1942, he states that the paper as now prepared will be acceptable to him if given adequate publication.

It is everywhere acknowledged that the Wright brothers were the first to make sustained flights in a heavier-than-air machine at Kitty Hawk, North Carolina, on December 17, 1903.

Mainly because of acts and statements of former officers of the Smithsonian Institution, arising from tests made with the reconditioned Langley plane of 1903 at Hammondsport, New York, in 1914, Dr. Orville Wright feels that the Institution adopted an unfair and injurious attitude. He therefore sent

Controversy Background

Newswriters invariably have misconstrued the 28-year-old controversy over the Wright plane, and even in reporting the Smithsonian announcement settling the controversy they fell into the traditional error.

The controversy was not over who flew the first airplane, but over who invented and built the first airplane capable of sustained heavier-than-air flight.

One of those most responsible for ending the controversy is Capt. Earl N. Findley, editor and publisher of *U. S. Air Services*, whose ably-edited monthly magazine has published one of the few accurate articles on the background of the dispute. Another is Dr. George W. Lewis, director of aeronautical research of the National Advisory Committee for Aeronautics. Both are close personal friends of Orville Wright.

the original Wright Kitty Hawk plane to England in 1928. The nature of the acts and statements referred to are as follows:

In March 1914, Secretary Walcott contracted with Glenn H. Curtiss to attempt a flight with the Langley machine. This action seems ill considered and open to criticism. For in January 1914, the United States Court of Appeals, Second Circuit, had handed down a decision recognizing the Wrights as "pioneers in the practical art of flying with heavier-than-air machines" and pronouncing Glenn H. Curtiss an infringer of their patent. Hence, in view of probable further litigation, the Wrights stood to lose in fame and revenue and Curtiss stood to gain peculiarly, should the experiments at Hammondsport indicate that Langley's plane was capable of sustained flight in 1903, previous to the successful flights made December 17, 1903, by the Wrights at Kitty Hawk, N. C.

The machine was shipped to Curtiss at Hammondsport, N. Y. in April. Dr. Zahm, the Recorder of the Langley Aerodynamical Laboratory and expert witness for Curtiss in the patent litigation, was at Hammondsport as official representative of the Smithsonian Institution during the time the machine was being reconstructed and tested. In the reconstruction the machine was changed from what it was in 1903 in a number of particulars as given in Dr. Wright's list of differences which appears later in this paper. On the 28th of May and the 2d of June, 1914, attempts to fly were made. After acquiring speed by running on hydroplane floats on the surface of Lake Keuka the machine lifted into the air several different times. The longest time off the water with the Langley motor was approximately five seconds. Dr. Zahm stated that "it was apparent that owing to the great weight which had been given to the structure by adding the floats it was necessary to increase the propeller thrust." So no further attempts were made to fly with the Langley 52 HP engine.

It is to be regretted that the Institution published statements repeatedly to the effect that these experiments of 1914 demonstrated that Langley's plane of 1903 without essential modification was the first heavier-than-air machine capable of maintaining sustained human flight.

As first exhibited in the United States National Museum, January 15, 1918, the restored Langley plane of 1903 bore the following label: THE ORIGINAL, FULL-SIZE LANGLEY FLYING MACHINE, 1903. For this simple label others were later substituted containing the claim that Langley's machine "was the first man-carrying aeroplane in the history of the world capable of sustained free flight."

Though the matter of the label is not now an issue, it seems only fair to the Institution to say that in September 1928, Secretary Abbot finally caused the label of the Langley machine to be changed to read simply as follows: LANGLEY AERODROME, THE ORIGINAL SAMUEL PIERPONT LANGLEY FLYING MACHINE OF 1903, RESTORED. Deposited by The Smithsonian Institution.

This change has frequently been overlooked by writers on the controversy.

In January 1942, Mr. Fred C. Kelly, of Peninsula, Ohio, communicated to me a list of differences between the Langley plane as tested in 1914 and as tested in 1903, which he had received from Dr. Wright. This list is given verbatim . . . (See top center columns). The Institution accepts Dr. Wright's statement as correct in point of facts. Inferences from the comparisons are primarily the province of interested experts and are not discussed here.

Since I became Secretary, in 1928, I have made many efforts to compose the Smithsonian-Wright controversy, which I inherited. I will now, speaking for the Smithsonian Institution, make the following statement in an attempt to correct as far as now possible acts and

(Turn to page 19)

PROPELLERS *over the* ATLANTIC



Streaming through the skies above the Atlantic, the U. S. Army's Air Transport Command is piling up a brilliant record in delivering hundreds of Boeing, Consolidated, and Lockheed bombers to Britain.

In millions of miles of trans-ocean operations no pilot has ever had to worry about his propellers. All of these bombers have been equipped with dependable Hamilton Standard Hydromatic propellers.

HAMILTON STANDARD PROPELLERS

One of the three divisions of

UNITED AIRCRAFT CORPORATION, EAST HARTFORD, CONN.



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Langley Comparison

(Continued from page 17)

- 11 The rear wing guy-post was located 31½" in front of the main center spar. (L.M. Plate 53).
- 12 UPPER GUY-POSTS: For each pair of wings a single steel tube ¾" dia., 43" long. (L.M. p. 184, pl. 62).

- 13 Front wing upper guy-post located 28½" in front of the main center spar. (L.M. pl. 53).
- 14 The rear wing upper guy-post was located 31½" in front of the main center spar. (L.M. pl. 53).

- 15 TRUSSING: The wing trussing wires were attached to the spars at the 5th, 7th and 9th ribs out from the center (L.M. pl. 54). The angle between these wires and the spars to which they were attached are shown in Fig. 3.

CONTROL SURFACES

- 16 VANE RUDDER: A split vane composed of two surfaces united at their leading edges and separated 15" at their trailing edges, thus forming a wedge. Each surface measured 2' 3" x 4' 6", with aspect ratio .5. (L.M. p. 214, pls. 53, 54).

- 17 Operated by means of a wheel located slightly in front of the pilot at his right side and at the height of his shoulder (L.M. p. 216, pls. 53, 54).

- 18 Used for steering only. (L.M. p. 214).

- 19 PENAUD TAIL: This was a dart-shaped tail having a vertical and a horizontal surface (Penaud tail), each measuring 95 sq. ft. It was located in the rear of the main frame.

- 20 Attached to a bracket extending below the main frame.

- 21 "Normally inactive", (L.M. p. 216) but adjustable about a transverse horizontal axis by means of a self-locking wheel located at the right side of the pilot, even with his back, and at the height of his shoulder. (L.M. pls. 51, 53).

- 22 Immovable about a vertical axis. (L.M. p. 214, pl. 56, Fig. 1). No means were provided for adjusting this rudder about a vertical axis in flight. "Although it was necessary that the large aerodrome should be capable of being steered in a horizontal direction, it was felt to be unwise to give the Penaud tail and rudder motion in the horizontal plane in order to attain this end." (L.M. p. 214).

- 23 KEEL: A fixed vertical surface underneath the main frame measuring 3' 2" in height by 6' average length. Area 19 sq. ft. (L.M. pl. 53).

SYSTEM OF CONTROL

- 24 LATERAL STABILITY: The dihedral only was used for maintaining lateral balance. (L.M. p. 45).

- 25 LONGITUDINAL STABILITY: Langley relied upon the Penaud system of inherent stability for maintain-

The rear wing guy-posts were located directly under the main center spar, 31½" further rearward than in 1903.

UPPER GUY-POSTS: For each pair of wings, two streamline wooden posts each 1¼" x 3½", 76" long, forming an inverted V. (See Fig. 4).

Front wing upper guy-posts located directly over main spar, 28½" further rearward than in 1903.

The rear wing guy-posts were located directly over the main center spar, 31½" further rearward than in 1903.

TRUSSING: A different system of wing trussing was used, and the wing trussing wires were attached to the spars at the 3rd, 6th and 9th ribs from the center. The angles between these wires and the spars to which they were attached were all different from those in the original Langley machine. (See Fig. 4).

VERTICAL RUDDER: The Langley vane rudder was replaced by a single plane vertical rudder which measured 3' 6" x 5', with aspect ratio of 7.

Operated at Hammondsport through the Curtiss steering wheel in some tests. (Zahm affidavit pp. 5, 6), through the Curtiss shoulder yoke in some others (Manly letter, 1914), and fixed so as not to be operable at all in still others. (Zahm affidavit p. 7).

Used "as a vertical aileron to control the lateral poise of the machine," (Zahm affidavit p. 6) as well as for steering. (Zahm affidavit p. 7).

TAIL RUDDER: Same size and construction as in 1903.

Attached to same bracket at a point about 8" higher than in 1903.

Operable about a transverse horizontal axis and connected to a regular Curtiss elevator control post directly in front of the pilot (Zahm affidavit p. 5).

Immovable about a vertical axis on May 28, 1914, only. Thereafter it was made movable about a vertical axis and was connected through cables to a Curtiss steering wheel mounted on a Curtiss control post directly in front of the pilot.

KEEL: Entirely omitted.

LATERAL STABILITY: Three means were used for securing lateral balance at Hammondsport: The dihedral angle as used by Langley, a rudder which "serves as a vertical aileron" (Zahm affidavit p. 6), and the Penaud tail rudder. The last two constituted a system "identical in principle with that of Complainant's (Wright) combined warping of the wings and the use of the vertical rudder." (Zahm affidavit p. 6).

LONGITUDINAL STABILITY: At Hammondsport the Penaud inherent longitudinal stability was supplemented

ing the longitudinal equilibrium. "For the preservation of the equilibrium (longitudinal) of the aerodrome, though the aviator might assist by such slight movements as he was able to make in the limited space of the aviator's car, the main reliance was upon the Penaud tail." (L.M. p. 215).

- 26 STEERING: Steering in the horizontal plane was done entirely by the split-vane steering rudder located underneath the main frame. (L.M. p. 214).

with an elevator system of control.

STEERING: On one day, May 28, 1914, steering in the horizontal plane was done with the vertical rudder which had been substituted for the original Langley split-vane steering rudder. After May 28th the steering was done by the vertical surface of the tail rudder (Zahm affidavit p. 7), which in 1903 was immovable about a vertical axis. (L.M. p. 214).

POWER PLANT

- 27 MOTOR: Langley 5 cylinder radial.
- 28 IGNITION: Jump spark with dry cell batteries. (L.M. p. 262).
- 29 CARBURETOR: Balzer carburetor consisting of a chamber filled with lumps of porous cellular wood saturated with gasoline. The air was drawn through this wood. There was no float feed. (L.M. p. 225).
- 30 RADIATOR: Tubes with radiating fins.
- 31 PROPELLERS: Langley propellers (L.M. pl. 53, pp. 178-182).

MOTOR: Langley motor modified.
IGNITION: Jump spark with magneto.
CARBURETOR: Automobile type with float feed.

RADIATOR: Automobile radiator of honeycomb type.
PROPELLERS: Langley propellers modified "after fashion of early Wright blades."

LAUNCHING AND FLOATS

- 32 LAUNCHING: Catapult mounted on a houseboat.
- 33 FLOATS: Five cylindrical tin floats, with conical ends, attached to underside of main frame at appropriate points, and about six feet above lowest part of machine.

LAUNCHING: Hydroplanes, developed 1909-1914, attached to the machine.
FLOATS: Two wooden hydroplane floats, mounted beneath and about 6 feet to either side of the center of the machine at the lateral extremities of the Pratt system of trussing used for bracing the wing spars of the forward wings; and one (part of the time two) tin cylindrical floats with conical ends, similar to but larger than the Langley floats, mounted at the center of the Pratt system of trussing used for bracing the rear wings. All of the floats were mounted from four to five feet lower than the floats of the original Langley, thus keeping the entire machine above the water.

WEIGHT

- 34 TOTAL WEIGHT: With pilot 850 pounds (L.M. p. 256).
 - 35 CENTER GRAVITY: ¾" above line of thrust.
- TOTAL WEIGHT: With pilot, 1170 pounds.
CENTER GRAVITY: About one foot below line of thrust.

Smithsonian Retracts

(Continued from page 17)

assertions of former Smithsonian officials that may have been misleading or are held to be detrimental to the Wrights.

1. I sincerely regret that the Institution employed to make the tests of 1914 an agent who had been an unsuccessful defendant in patent litigation brought against him by the Wrights.

2. I sincerely regret that statements were repeatedly made by officers of the Institution that the Langley machine was flown in 1914 "with certain changes of the machine necessary to use pontoons," without mentioning the other changes included in Dr. Wright's list.

3. I point out that Assistant Secretary Rathbun was misinformed when he stated that the Langley machine "without modification" made "successful flights."

4. I sincerely regret the public statement by officers of the Institution that "The tests" (of 1914) showed "that the late Secretary Langley had succeeded in building the first aeroplane capable of sustained free flight with a man."

5. Leaving to experts to formulate the conclusions arising from the 1914 tests as a whole, in view of all the facts, I repeat in substance, but with amendments, what I have already published in Smithsonian Scientific Series, Vol. 12, 1932, page 227:

The flights of the Langley aerodrome at Hammondsport in 1914, having been made long after flying had become a common art, and with changes of the machine indicated by Dr. Wright's comparison as given above, did not warrant the statements published by the Smithsonian Institution that these tests proved that the large Langley machine of 1903 was capable of sustained flight carrying a man.

6. If the publication of this paper should clear the way for Dr. Wright to bring back to America the Kitty Hawk machine to which all the world awards first place, it will be a source of profound and enduring gratification to his countrymen everywhere. Should he decide to deposit the plane in the United States National Museum, it would be given the highest place of honor, which is its due.



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AMERICAN AVIATION DIRECTORY: Published twice a year, spring and fall. Complete reference data on administrative and operating personnel of airlines, manufacturers, accessories firm and their products, organizations, schools and local operators, federal and state government agencies concerned with aviation and related aviation interests in the U. S., Canada and Latin America. Single copy, \$5; Annual subscriptions, \$7.50. Discounts on quantity orders. Distribution of next issue scheduled for third week in November. HELEN L. WALSH, Managing Editor.

Fortnightly Review

(Continued from page 1)

Twenty cargo planes each carrying ten tons means 200 tons for the fleet. In the same five days, with only one round-trip per day, the cargo planes would transport 1,000 tons to Houston, New Orleans or any other southern city, all with non-stop hops across the Gulf requiring not more than five hours flying time. With night flying affording two round-trips every 24 hours, these same twenty airplanes could carry 2,000 tons in five days, or almost four times the tonnage of the one 20-car freight train.

Furthermore, the cargo planes could reach out to many cities. Chicago is only six or seven hours farther than New Orleans. Kansas City is only four or five hours, and these cities could be reached with only one or two refueling stops from the loading point in Central America. And it should be pointed out that even though the new bridge is a great help to rail traffic, the freight must still be transferred from narrow gauge to standard gauge railroad at the Guatemalan border.

The fact that the national capital's leading morning newspaper made front page news out of a Central American rail connection is, in turn, front page news for an aviation periodical in 1942 when air cargo is making history in all parts of the world. Guatemala probably seems mighty far away to the news desk of *The Washington Post*, but how close it really is!

The *Post* news editor may not know it, but he could leave Washington at 9 o'clock any evening, have luncheon in Mexico City the next day and dinner in Guatemala City. But this is by the air route over the land which the railroad so tediously follows. The real air route which some day will inevitably be

opened, is by way of New Orleans, a short seven hours from Washington, and thence five hours across the Gulf, a total of 12 hours by the airliner speed as we have known it in the past few years. Post-war passenger travel will be faster.

From the standpoint of cargo, however, the important point is the 700 and 800 mile hop across the Gulf in place of the five-day rail route through Mexico. Five hours by air against five days by rail. And the 10-ton capacity cargo plane which we used for purposes of illustration is merely a small beginner to the cargo giants now on the way. This is the real front page news of today.

The Chamber Crisis

THE Aeronautical Chamber of Commerce is going through its greatest organization crisis, but it would be a mistake for anyone to interpret the uproar as disunity in the industry itself. From one end to the other, the industry wants a unified trade association. The present crisis is purely one of internal Chamber trouble which will inevitably find a solution in due course.

Certain industry companies have endeavored without success to eradicate defects in the Chamber. Having failed in the past they took the only course which seemed open to them, a course of resigning and forcing the issues upon the entire membership. Whatever the merits of this move, the end result must be the more satisfactory for the complete airing the Chamber's difficulties are getting. The Chamber needs streamlining and this is what it apparently will get.

Credit is due the committee headed by Edgar N. Gott, vice president of Consolidated Aircraft Corp., for sweating over the Chamber's problems for three solid days in an effort to draw up a reorganization satisfactory to all concerned. As this common written result of this planning is not known, but the prospects for a unified trade association appeared brighter than they had previously.

A unified industry trade association is paramount and essential at this time. The aviation industry is today one of the nation's largest and most important. It is in the public eye. Weighty problems must be handled by a central organization, not by organizations only partially representative of the industry. The goal of industry unity—at any cost—can be kept uppermost in the minds of industry leaders, the present crisis can be brought to a satisfactory conclusion.

A Page in History

A FEW months ago Eastern Air Lines inaugurated an exclusive mail-freight service between New York and Miami. On Nov. 1, United Air Lines began a similar exclusive mail-freight service between New York and Salt Lake City. It is possible that one or more additional lines may inaugurate similar schedules.

In a considerable sense, the Eastern and United mail-freight schedules might be considered the starting point of air freight operations in the United States. Fifteen years ago air express service was launched, and at several periods in those fifteen years abortive attempts have been made to maintain regular exclusive air freight schedules. It would seem, however, that the new schedules of Eastern and United are bound to remain from here on, and if they do, they mark the real beginning of a new era. True though it is that the schedules are operated to take care of the overloads on passenger services, they are the beginnings of hundreds and thousands of all-freight services which some day will operate throughout the United States. From the standpoint of aviation history, the inauguration of these schedules is worth noting.

Air Map

WE BELIEVE the most startling and effective advertisement ever published in the national press by any aviation company is the "Air Map" inserted in newspapers early in November

by American Airlines, Inc. Because of the widespread interest it has created, we have re-produced the map in these columns, and we submit that this type of informative advertising copy will do more to usher in the air world than 99% of the routine advertising of products and services which omit the vision of the future.

Even *The New York Times* broke precedent by commenting editorially on the advertising. "Probably a good many of us received a mental jolt from the 'air map' published in yesterday's *Times* as an advertisement of American Airlines," the editorial said. "It gave us a new and startling view of the world as seen from the skies above the North Pole. Places we had thought firmly anchored in our school book atlas took on an entirely new relationship to each other when viewed from this lofty angle."

The thesis, of course, is that air, by its very nature, is exempt from such boundaries and is the universal medium common to all climates and all peoples. . . . the universal nature of air transport already is a reality. Its impacts on a post-war world are sure to be even more real and more far-reaching."

A polar projection map is exciting enough, but American's technique of removing all surface "pictures" of lands and waters is the startling touch which illustrates the air ocean which has no surface barriers or boundaries. It brings home forcefully the third-dimensional air world which puts Asia just over the Pole a few hours from us by air route instead of around the world many thousands of miles farther.

Here is some of the expressive text which accompanied the American ad:

"The war is forcing great changes in the lives of people all over the earth. Some are temporary; others will remain. The greatest permanent change will result from the increasing use of air as a realm for transportation. Therefore unnumbered millions of persons are re-studying geography. But there is no map of the invisible air."

"The land and sea miles that separate places remain the same. But airplanes cancel

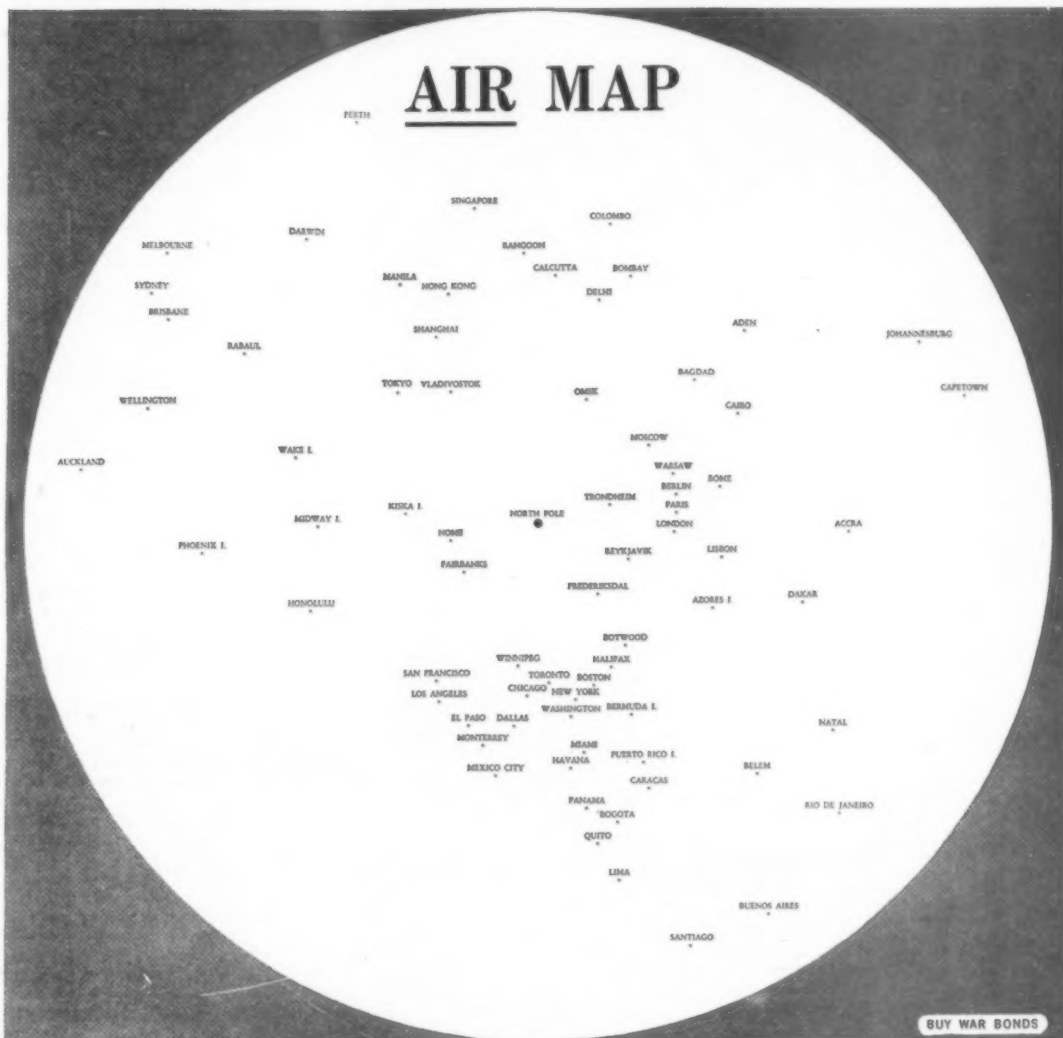
the surface barriers and change the proximity of places. Inevitably, as all peoples continue to become closer neighbors, they will have a more direct influence upon each other. No phase of our lives will be immune to the effects of this new propinquity. . . .

"Air is much larger than all waters and lands combined, and is available alike to all inland and coastal places, everywhere. Therefore we believe air is the dominant realm for transportation. We know that there will always be need for ships, trains and motor vehicles, but we believe that the relative value and effectiveness of all surface methods will be determined according to how well we use what only air transportation makes possible. . . .

"Immediate development and

expansion of America's aviation is necessary . . . in order to protect our nation at the Peace Conference. Then, either we will be dominant in the air—or we will be dominated in the post-war, air-world."

To American Airlines (and especially to its advertising prophet and genius, P. P. Willis), must go great credit for an educational effort which advances the arts and sciences of all aviation. The story of global flight in the air world is the story of today. It is this story that the Air Transport Association of America, and the Aeronautical Chamber of Commerce, if they were alive to the challenge of tomorrow, would be telling and re-telling day after day. Let the people understand and aviation in America will not lag behind.



Kaiser-Hughes Forms

Filing of articles of incorporation for Kaiser-Hughes, full name of a new organization, marked the first official step in building the cargo planes proposed by Henry J. Kaiser, recently. Papers were filed Oct. 7 with California's Secretary of State. Purpose of the new firm was given as the developing of "three prototypes for cargo air ships for the government of the United States of America, for the actual cost of such work and without any profit."

CAP Delivers for Chicago

War plants within a 150-mile radius of Chicago were offered free airplane delivery service by Group 611 of the Civil Air Patrol for a 30-day period which started Oct. 25.

This experimental service is expected to ease shipping difficulties due to transportation restrictions, and to expedite prompt transfer of inspectors or personnel to sub-contractor plants.

CAP's Group 611 which has 60 airplanes and 100 qualified pilots, will have three planes daily for this service.



"How'd you get in the Army with that bad heart?"

Bookshelf

Aerial Photographs: Their Use and Interpretation. By A. J. Eardley, Harper & Bros., New York. Illustrated. 200 pp.

This is one of the Harper's Geoscience Series edited by Carey Cronels. The author has taught courses in aerial photography at the University of Michigan and has made a valuable contribution to the subject with this current revised edition. Certainly in the field of aerial photography this book will be a "must," although it is somewhat too technical for the layman. Aerial mapping is opening up a vast new field of exploration, as science is discovering, and this is distinctly a source book. It is well illustrated with plates and figures.

War Planes of the Axis. By David C. Cooke, Robert M. McBride and Co., 116 E. 16th St., New York. Illustrated. 256 pp. \$2.75.

Major Al Williams has provided a foreword for this interesting book in which he emphasizes how sadly we underestimated our enemies before the war. Author Cooke has endeavored to give the American public a directory of Axis airplanes so that it can understand somewhat the fighting task ahead. He has done his job well considering all of the limitations to telling the public what the enemy has on hand in the midst of war.

Mr. Cooke's book is much easier to read than the usual type of aircraft directory, but even so one must be an aircraft fan to be interested in performance details of airplanes that never get into the news headlines. The average citizen has read of a few outstanding German and Japanese models, and that's about all. For those who are interested, however, and this category should include millions of lads who read everything on aviation they can get hold of, the book should be very useful. The illustrations are good. Non-military airplanes are not included, but many fans will feel the lack of three-way drawings which obviously are difficult to obtain in the case of late models. Author Cooke has a wholesome sense of awe of Axis airpower and sensibly draws no broad conclusions. We're glad he per-

formed a useful service by publishing this book at this time.

How to Fly an Airplane. By Capt. Bernard Brookes. Consolidated Book Publishers, Chicago, Ill. Illustrated. 224 pp. \$1.00.

The author is a pioneer in aviation who enlisted in the Signal Corps, First Air Squadron, U. S. Army, in January, 1911, and was stationed at College Park, Md., where many noted Army men learned to fly. He flew in the first World War, subsequently being attached to the 496th Aero Squadron, AEF. Flying was considerably different in those days, but the author has adjusted himself admirably to today's techniques in training. There is an introduction by Major Nathaniel F. Silsbee, Army Air Forces. The book itself is in conversational style, much more informal than technical, and is well illustrated both with photographs and diagrams, the latter being especially good. It is one of the best books of its kind to make its appearance. The drawings alone are valuable for instructional purposes since they are simplified to a gratifying extreme.

Agency Appointments

Interstate Aircraft and Engineering Corp., Los Angeles, Cal., has announced that Erwin Wasey and Co., (Los Angeles), New York, N. Y., has been appointed as its advertising agency. Schedules in aviation publications are expected to appear soon.

Aircraft Accessories Corp., (Missouri), Kansas City, Kan., announces appointment of Kirkgasser-Drew, Chicago, Ill., as advertising counsel. Hydraulic aircraft controls and precision radio equipment are company products which will be featured in the advertising campaign, scheduled to begin with "November issues."

Letters

Reply to Pilot's Protest

Washington, D. C.

The anonymous pilot who signed the "A Pilot Protests" letter in your November 1 issue writes very well. It is a letter hard to answer because of its innuendoes and half truths. Unfortunately but obviously not everything can be told now about this subject of pilots' pay under the air cargo contracts.

The ATA represents the airlines. Some controversy between the airlines and the pilots' union is inevitable. So far as is known by, I believe, the majority of the members of the air transport industry, there has never been anything but assistance and aid given to all members of the industry, including the pilots, in the scope, functions and philosophy of the ATA. Because it has so much to do, it may make errors in execution, but in the long run members of the industry feel that the ATA has accomplished and is doing a good job. It serves and does not direct what it does.

Everyone will agree that the pilots are doing a superlative job. Since December 7 almost everyone in air transport has worked longer hours than in peacetime and often under adverse conditions. Not everyone in the industry has received more pay for doing so.

Advertising what the airlines are doing in collaboration with the Air Transport Command has a definite use. It helps the Army, for it points out to the public the truth that the air transport industry need not be taken over by the military services, but can be utilized more effectively as a civilian activity than could the operating and maintenance procedures and equipment and personnel, including pilots, dispatchers, mechanics and meteorologists, if all were taken over by

the Army and the Navy. No one of personnel has been singled out for credit in this advertising. Credit is given to air transport as a whole and to the Army for the collaboration with air transport, both of which organizations "An Air Pilot" seems to forget include mechanics, dispatchers, meteorologists, clerks, accountants, commanding officers and executives.

An Unimportant Member of the Air Transport Industry

What About Airports?

Fort Wayne, Ind.

I read with interest the story (55 essential airline jobs) Page 26 of the Oct. 15 issue.

I am wondering if other airports are finding their draft boards drafting men in aviation the same as any canning factory.

After reading the story I called upon the local draft board and they said they do not have information of any deferment men in airport employment until they get word from headquarters they will continue draft the aviation boys.

Now can you advise me if Washington is really advising their draft boards to defer airport employees? I am operating with cut force now and just can't find it possible to operate with old and new men.

ROBERT T. SCHOTT, Manager, Smith Field Municipal Airport

Editor's Note: Selective Service has issued occupational deferment lists in airlines, CPTP and CAA, and aircraft manufacturing, but not for airport employees. Many valuable technical specialized men are still being drafted willy-nilly. Outlook for more reasonable control of manpower not very bright. What are experiences of other airports?

Obituary

G. N. Armsby

George N. Armsby, 66, chairman of the board, Curtiss-Wright Corp., died Oct. 25 at Mt. Sinai Hospital, New York, N. Y.

In 1932, Mr. Armsby was elected a director of North American Aviation, Inc., and in 1934 became chairman of the board. In the same year he was elected a director of Curtiss-Wright Corp., becoming chairman of the board in 1937.

Besides these responsibilities in the aviation industry, Mr. Armsby at the time of his death was a director in the Sperry Gyroscope Co., Sperry Corp., and the Wright Aeronautical Corp.

Lt. Comdr. W. Clarkson

Lieut. Comdr. W. F. Clarkson, 48, planning and production superintendent of the assembly and repair department, Naval Air Station,

Pensacola, Fla., died Oct. 25. Clarkson had been at the station during the past year and a half. He was at one time manager of the Buffalo, N. Y. office of the Johns Mansville organization, and was a Naval aviator in World War I.

Sergei Chaplygin

Sergei Chaplygin, 73, said by the Russians to be a "pioneer in aviation theory," died Oct. 8 in Novosibirsk, U.S.S.R., according to the *Information Bulletin* of the Embassy of the U.S.S.R. Chaplygin is credited by this publication as being along with Zhukovsky, one of the founders of the theory of the aircraft wing. These two scientists discovered "a number of basic laws governing the lifting capacity of aircraft wings. The first streamlined airplane wings were created in Russia in 1910 on the basis of Zhukovsky's and Chaplygin's theory."

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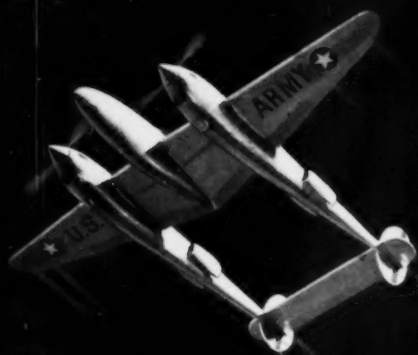
and our fighting pilots deserve our best!



FOR FOREMOST PERFORMANCE:
Aircraft Hydraulics, Fuel Pumps,
Air Pumps, related accessories by...

Pesco

Division of Borg-Warner
Cleveland, Ohio



What's all this talk about Altitude?

Aircraft have missions to perform at various altitudes.

All military aircraft are designed to give their best performance at some SPECIFIC altitude.

If it's WAY UP you are talking about, up as high as a fighting plane of any nation has ever sought or met an enemy, that's as much HOME as any other level to an Allison engine.

For the Allison engine, combined with

the turbo-supercharger, is the power that makes the Lockheed "Lightning" (shown above) the world leader at the highest altitudes at which planes fight.

And when comparing American fighting planes with foreign competition, don't forget that the American ships carry more weight because of their superior protective armor, heavier fire power, longer range and better instrumentation.

LIQUID-COOLED AIRCRAFT ENGINES

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Grace Seeks to Control Its Airline Competitor, PAA Claims; Asks Probe

Says Steamship Line Restricts Panagra Growth

By ERIC BRAMLEY

CHARGES that W. R. Grace & Co., steamship operator, is seeking to "take over" Pan American-Grace Airways, "its airline competitor," and that Grace has "suppressed" and "restricted" the proper development of Panagra, were made Oct. 27 by Pan American Airways in a petition to the Civil Aeronautics Board.

The Board was urged by PAA to institute an inquiry into the management of the business of Panagra, which is 50% owned by Grace and 50% by PAA.

The petition asserted that:

• PAA has been "forced to the conclusion" that the west coast airline in South America will never be developed as it should be so long as "either positive or negative control of Pan American-Grace rests in the hands of its steamship competitor."

• Grace, in some instances, has used its position on the Panagra board of directors "to prevent the development of the services of Pan American-Grace in a manner that would injure Grace's steamship business."

• Panagra is now an "integral part of the Pan American Airways System, and, with its present operations, there is no inconsistency of interest between it and Pan American."

PAA's petition was prompted by the decision of the Board to consider whether or not Panagra should be awarded a terminal in the U. S. A hearing is expected to be held shortly.

The petition was also in answer to a bitterly-worded memorandum filed with CAB by Grace on Apr. 29, 1942, at which time D. S. Iglehart, Grace president, appealed to CAB to require PAA to divest itself of ownership of stock in Panagra "to such an extent as may be necessary to divest itself of its present negative control" of Panagra.

At that time Iglehart claimed that Panagra "has attained a stature which not only justifies but requires its existence as a completely independent air carrier."

The request for a U. S. terminal for Panagra was filed by Grace, the latter alleging that PAA members of the Panagra board refused to allow the company to file for itself.

If, as a result of its inquiry, CAB should conclude that Grace

be required to divest itself of part or all of its Panagra stock, PAA in its petition offered to acquire such stock on such terms and conditions as CAB may determine.

In addition to being an attempt by a steamship company to take over its airline competitor, Grace's actions also constitute "an attempt by a closely-held private holding company, which for nearly a century has exercised domination over transportation and commerce between the U. S. and the west coast of South America, to oust the one outside American interest that has attempted to engage in transportation in this area dominated by Grace," PAA asserted.

Formed Subsidiary

"In this connection, it is pertinent to inquire why if Grace wishes to compete in air transportation with the Pan American Airways System, it has not applied for a certificate on its own behalf. This, of course, it has been entirely free to do. Indeed, in the Spring of 1941, it organized a subsidiary known as Gulf & Caribbean Airways Inc., for that very purpose, and announced that a certificate application to operate between the U. S. and the Canal Zone would shortly be filed by that company.

"The question here presented is thus not simply whether creation at the present time of a competitive American flag airline between the U. S. and the Canal Zone is a wise policy, but whether, if there is to be competition, it should be furnished by an airline controlled by a company which not only is the airline's steamship competitor but also dominates other forms of trade and commerce with the area in question. Such a course would not only run counter to the general policy outlined by the Board in the American Export case . . . but would solidify the control of Grace over transportation and trade between the U. S. and our sister republics on the west coast of South America."

PAA revealed that some time

ago it had proposed to Grace that a ninth director of Panagra be named for the duration of the war. This director "would have the power to break any deadlock on any questions arising in connection with operations of the company that fall within the scope of the dedication of capital made by the two stockholders. Pan American reiterates this offer."

Loses Passengers

In normal times, PAA stated, almost every passenger carried by Panagra between the Canal and Santiago, whether through or local, "is a passenger lost to the Grace Line, and almost every connecting through passenger carried by Pan American between the U. S. and the Canal is likewise a passenger lost to Grace."

PAA charged that Grace at one time used its negative control over Panagra to continue the operation of single-engine equipment on a section of the west coast trunk line to Buenos Aires while at the same time it was advertising the first of a fleet of "sparkling new Santa liners" which offered "all outside staterooms" and "dancing under the moon." Panagra still has no four-engined planes, it pointed out.

Grace has opposed suggestions of PAA for installation of more ground facilities, PAA alleged, adding that "even today investment in ground facilities per route mile on the route of Pan American-Grace is very considerably less than that on Pan American Airways' routes in Latin America . . .

"Throughout all these years there has been no single instance in which a Pan American director has opposed the improvement of facilities by Pan American-Grace."

Perhaps the "most serious instance of Grace's use of its negative control" over Panagra has been its attitude on the Canal Zone-Guayaquil route, PAA asserted. Instead of accepting a PAA offer to charter four-engined planes and flying a 775-mile over-water



PCA Worker: Something new has been added to Pennsylvania-Central Airlines' maintenance department—women are now filling jobs which have been "for men only" since the start of the airline business. Mrs. Marjorie Landa is shown doing intricate work on a carburetor air scoop in the company's sheet metal shop at Washington. She is the daughter of the late Congressman Frank Mondell of Wyoming.

route between these points, Grace has insisted on using twin-engined aircraft, necessitating a flight of 985 miles over mountains at an altitude of 12,000 ft., it claimed.

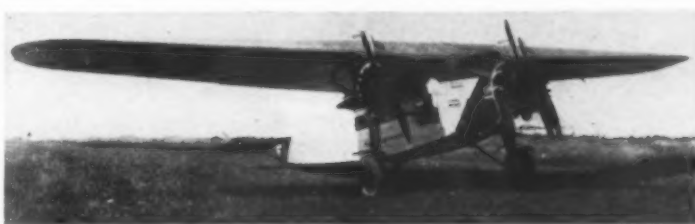
In 1938, Grace commenced its repudiation of the basis on which it had acquired an interest in Panagra by demanding that Panagra be allowed a U. S.-Canal Zone route and that management of the enterprise be turned over to Grace, the petition continued.

In an "attempt to live in harmony with its partner," PAA made an agreement with Grace providing that (1) a U. S.-Canal Zone route would not be sought as long as PAA's connecting service was adequate and (2) a Grace director would be elected president of Panagra.

Even after this agreement, Panagra "is still not rendering the service to the west coast of South America which it ought to render in the public interest," the petition said. In fixing mail rates recently for the two companies, CAB gave PAA 17.83c and Panagra 50.77c.

"There is no substantial difference in the operating conditions of the two carriers—certainly none sufficient to account for this wide discrepancy in operating results. This difference of 32.94c . . . means an extra cost of considerably over a million dollars a year to the taxpayer."

Discussing the adequacy of connecting service, the petition claimed that "Pan American Airways' daily capacity from the U. S. to the Canal Zone is now approximately four times Pan American-Grace's capacity south of the Zone."



PAA Pioneer: On Oct. 19, 1927, Pan American Airways began "international" operations over a 90-mile route between Key West, Fla., and Havana, Cuba, using Fokker F-7s like the one shown above. Celebrating its 15th birthday last month, PAA had more than 20,000 men and women on the payroll and was flying almost 100,000 route-miles. During the 15 years, PAA planes have transported approximately 2,350,000 passengers and flown 161,000,000 miles.

House Committee Blames Army Pilot for AA Accident

Blame for the crash of an American Airlines DC-3 on Oct. 23, resulting in the death of all 12 persons aboard, has been laid squarely at the door of an Army pilot by the Select House Committee to Investigate Air Accidents.

Lieut. W. N. Wilson, knowing that a friend of his was to be a crew member of the AA plane, took his bomber to a point on the airway near Palm Springs, Calif., where the airliner was to pass, according to reports of the committee's statement.

Climbing to the airliner's altitude, Lieut. Wilson wig-wagged the wings of his plane, it said. "After passing the airliner, going a mile or a mile and a half, he crossed over in front from the left-hand side to the right hand side at approximately the center of San Gregorio Pass. Then he made a left turn to see if the cross-over had been completed. He then sighted the airliner again about half a mile to the north, about opposite and slightly above. In order to get closer to the airliner to see his friend, he again turned toward the airliner.

"He saw that he was too close and at this time made a violent turn to the right to avoid the collision but was unable to do so. The collision occurred during this turn.

"This information was all obtained by the Army investigating board and is the statement made to

them by Lieut. Wilson. Lieut. Wilson is now under arrest and is to be charged by the military with manslaughter and tried before the court martial. He appeared before our committee under armed guards."

Lieut. Wilson, attached to the Air Transport Command, 6th Ferrying Group, was able to land his plane after the collision.

According to press reports, Edwin Gerry, of CAA's airways traffic control, told the committee that Lieut. Wilson had been flying above 3,500 ft. with CAA permission. Gerry was quoted as saying that although Capt. Charles F. Pedley, the AA pilot, had informed airways traffic control that he would fly at 9,000 ft., Lieut. Wilson had filed no flight plan.

Shortly after the accident, Charles Rheinstrom, AA vice president, issued a statement explaining that the AA ship had been on schedule in clear weather when the collision occurred.

New Booster Coils Announced by GE

Two newly designed ignition booster coils for aircraft engines have been introduced by General Electric Co., Schenectady, N. Y. Complying with AAF specs, one of these coils is for 12-volt operation and the other for 24-volt.

The boosters provide ample and positive spark for engine starting at low magneto speeds. The coil operates only at starting; subsequently it is cut out of the ignition circuit. One booster coil is needed for each magneto.

A specially developed material that offers extra insulating strength and high resistance to arc-over is used in the housings for the coils. Successful operation over an ambient temperature range of 70°F. to +200°F. has been reported.



AA Goes International: When American Airlines opened its new route to Mexico City recently, officials who took the first flight were received by Mexican President Avila Camacho. Shown above left to right, are Senator Franco Urias, vice president of American Airlines de Mexico, S. A.; Hon. James Mackinnon, Canada's Minister of Trade and Commerce; unidentified attaché; President Camacho; A. N. Kemp, president of American, and Amon Carter, Ft. Worth publisher and a director of American. Photo at top left shows two of the AA officials responsible for successful opening of the route: Erby Swift (l), president of American Airlines de Mexico, and Hollis Thompson, regional vice president of American at Los Angeles.

AIRLINE COMMENTARY

There is a feeling within the Civil Aeronautics Board that the time ripe for the airlines to reduce passenger fares . . . It is understood the Board will hint at this in a rate decision due out shortly, possibly the time this issue is in the mail . . .

Wanted: a good educational job to be done by the airlines to explain to passengers why some flights, with heavy express and mail loads, depart with empty seats . . . Mr. Average Passenger doesn't realize that the empty seats are caused by the heavy cargo loads . . . He may have had a tough time getting a seat, and five or six empty ones make him wonder . . . The airlines did a good job educating the public about "no-shows," and here's a place for another good job . . . For instance, the lines might place cards on empty seats, explaining that it is empty because of heavy mail-express loads . . . Have you an idea? Send it in to this column . . .

The industry is impressed with the way CAB Chairman Welch is getting around . . . Recently he visited Continental's Army modification center at Denver, United's Cheyenne base, and All American's Wilmington headquarters . . . Airline officials want more of these visits would also like to see other members of the Board, provided the other members want to see them . . .

What is undoubtedly an all-time load factor record was established in October by Pennsylvania-Central with its 5:40 pm departure north from Washington . . . The plane left Washington every day with 21 passengers except on Oct. 28 when there was a delayed departure, and two passengers who were signed in couldn't be located at the airport . . .

Some interesting and valuable charts on airline plane utilization, percentage of priority business to total business, load factors, etc., have been prepared by CAB . . . They illustrate graphically the part being played by the airlines in the war effort . . . If Army clearance can be obtained CAB will make them public . . .

The industry is still waiting for the Court of Claims decision on the United Air Lines 1934 air mail cancellation suits . . . The Court meets the first Monday of each month, opening the fall session in October . . . There was no decision in October, and none in November . . . If favorable to United, the decision will certainly be a slap in the face for the Administration . . . Could it be that it was held up until after November elections?

CAB has had pending for a good many months an investigation into the contracts between the airlines and Railway Express Agency . . . There will be some important developments in this case shortly . . .

The Post Office Dept. has ruled that no sealed package, parcel or other sealed article (except letters in their ordinary and usual form, and official mail) may be accepted for air mail unless it bears on the address side the name and address of the sender and the endorsement: "Postmaster: This package may be opened for postal inspection if necessary." It is understood that postmasters have been instructed to examine all packages . . . This is designed to keep non-mailable material off the airlines . . .

Russell Adams is now acting chief of CAB's new research and analysis division, which is expected to become increasingly important . . . Frank Crozier, who was named chief, is now with WPB . . . CAB, incidentally, never made a formal announcement that Jesse Lankford is acting chief of its safety bureau, succeeding Jerome Lederer, now with Air Lines War Training Institute . . .

E. B.

WMC Names Hanson Industrial Consultant for U. S. Air Carriers

War Manpower Commission on Nov. 1 announced appointment of Maurice S. Hanson of Madison, Wis., as National Industrial Consultant for Air Carriers and War Construction, culminated several months service in that capacity. Mr. Hanson has been training adviser for war construction industries and heads up an organization to assist the nation's industries in handling more efficiently "on the job" training.

John T. Seigle has been acting assistant to Mr. Hanson. Although Mr. Hanson will continue general supervision of two midwestern regions, retaining Madison as his home office, he now heads up the industrial consultant divisions of the Apprentice Training Program with the assistance of Mr. Seigle.

At present they are working on the established four year apprentice training program as well as the newly organized shorter program which varies in length from three to four months. Women as well as men are accepted for the courses instituted by airlines, factories and supervised as well as guided by the WMC division.

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Examiner Asks Cancellation of TSA Certificate

The "grandfather" certificate of Tri-State Aviation Corp. for operation of air express service from Baltimore to five terminals in West Virginia should cease to be effective, according to recommendations made by CAB Examiner Frank McIntyre.

Tri-State suspended its service about Sept. 1, 1939, and never resumed operations.

"The record clearly shows, and the carrier admits, that Tri-State has not rendered any of the air transport services authorized by its certificate," McIntyre said.

"The only explanation of this failure to comply with the terms of the certificate was the testimony of Tri-State's president that the only other stockholder refused to attend stockholders' meetings or to cooperate in any way in the affairs of the company, making it impossible to make proper arrangements for rendition of the authorized services.

"Unquestionably, the Board has been extremely lenient with Tri-State. It has allowed the carrier more than two years within which to resume service but the record is devoid of evidence of any substantial affirmative efforts to perform any of the authorized operations.

"It would appear contrary to the public interest to permit a certificate to remain in force indefinitely, particularly where, as here, the carrier has not only failed to perform its certificated operations, but where the record creates serious doubt as to its ability to perform such operations within any reasonable period in the future. Furthermore . . . Tri-State is attempting to sell its certificate. The record does not reveal any special considerations upon which to base a recommendation that the Board continue its lenient attitude towards Tri-State."

GE Announces Crest Voltmeter

A new electronic Crest Voltmeter, Type A3, announced by General Electric Co., Schenectady, N. Y., is designed to measure ignition voltages of internal combustion engines, surge voltages caused by corona and surface discharges in the insulation on electric equipment, and other repeated-impulse voltages up to 30,000 volts.

The instrument, weighing only 23 pounds, fills a need for a portable crest instrument. It is suitable for field measurement, as in troubleshooting and the determination of actual operating conditions, and can also be used for flight testing of aircraft engines. The voltmeter is equipped with an aircraft-instrument movement to provide resistance to vibration. It can be supplied marked and calibrated for any of the following scale ranges: 0-10,000 volts; 0-20,000 volts; 0-30,000 volts.

UAL Opens Cargo Service

(Continued from page 1)

new operation devote all space to mail and freight. At Salt Lake, the loads are flown on to Pacific Coast destinations on regular schedules, one route going northwest to Seattle, another straight into San Francisco, and Western Air Lines' route southwest into Los Angeles.

For many months, the UAL route between New York and Chicago and Salt Lake City has been jammed with freight. Out of Chicago west, as high as one-third of the seats on regular flights were blocked out for the express-mail-freight department. Even this, however, failed to solve the problem. On some days, the company had as high as 2,000 lbs. more express than it could move, turned some over to the other airlines, and flew the rest on later trips.

Although in most cases this excess was moved within a 24-hr. period, it still meant that some important war cargo was delayed. Almost all the express is priority business.

All airline flights out of New York in the evening are faced with the problem of moving large quantities of air mail and express and large numbers of passengers simultaneously. For this reason, UAL's new schedule departs from New York at 11:55 P. M., thus relieving

other flights of heavy loads, and arrives in Salt Lake the next afternoon at 1:29. Eastern's cargo flight to Miami leaves New York at 9:30 P. M., arriving Miami 6:00 A. M.

Much of the credit for inauguration of the new UAL trip goes to Charles P. Graddick, one-time superintendent of air mail in the Post Office Dept., and now UAL's director of mail, express and freight. Graddick on several occasions has expressed the belief that establishment of a network of cargo schedules was only a matter of time.

"Whatever may be said concerning the slowness of air cargo development by the airlines of the United States, the fact remains that they are faced with competition from the finest surface transportation system in the world, both by rail and by motor trucks," Graddick said earlier this year.

"This further may be said—that any future development will have to take into consideration very keen competition on the part of the railroads and motor trucks. Any air cargo operation that is to be permanent must be carefully planned and the operations must be carried out not only efficiently but on the soundest economic principles.

"While the problem may not be simple, it definitely will be solved."

Traffic

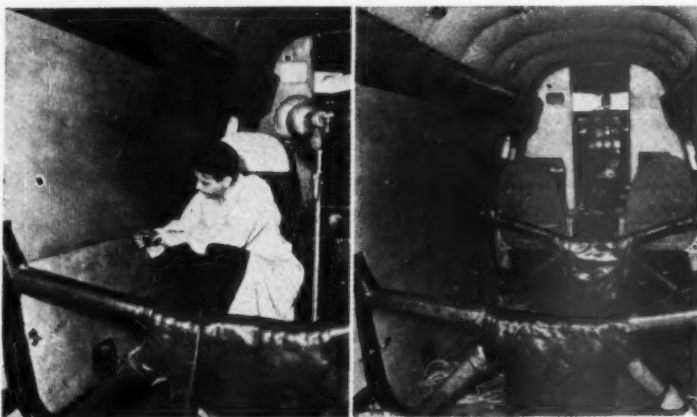
Northwest Airlines, Inc. reports decreases in passenger traffic during September, because of "temporary cancellation of some flights to permit overhaul of equipment." There were 5,800 revenue passengers in September, compared with 8,007 in August. Revenue passenger miles totaled 4,045,666, contrasted with 4,985,027 in August. Air express carried totaled 109,215 lbs. against 30,377 lbs. in the same month of 1941. Air express pound miles were 95,066,207, an increase from the 41,063,872 operated in September, 1941. Air mail likewise showed an increase, NWA carrying 242,773 lbs. contrasted with 236,726 lbs. in September, 1941. And in September, 1942, air mail pound-miles amounted to 211,522,200, compared with the 173,978,753 figure in September, 1941.

Trans-Canada Air Lines had increases in air mail, express and passengers carried during the first eight months of 1942, according to recent release. Air mail increased from 128,149 lbs. in January to 208,617 in August. For the total eight month period, TCA carried 1,265,683 lbs. of air mail, only 123,931 lbs. less than volume in all of 1941, and 169 tons more than in all of 1940. Air express rose from 13,566 lbs. in January to 38,835 lbs. in August. In the first eight months of this year, it amounted to 179,992 lbs., more than three tons above the figure for the entire year of 1941, and 37 tons more than in all of 1940. TCA carried 8,674 passengers in the 1942 period, compared with 54,128 in the same period of 1941.

Transcontinental and Western Air, Inc. announces continued increases in air express pound-miles flown. In September, 1942, pound-miles totaled 539,091,527, not including cargo operations for the Army Air Transport Command. It was a "new high," 12% more than August, 1942, and 17% above the September, 1941 total. In the period from January through September, 1942, TWA flew 150% more pound miles than in the 1941 period.

Trans-Canada Air Lines announces that in Sept. 1942 it transported 216,970 lbs. of mail, which was 8,353 lbs. more than in August and 86,422 lbs. more than in Sept. 1941. But express hauled in Sept. 1942 was 37,484 lbs., a decrease of 1,351 lbs. from August, and an increase of 20,539 lbs. over Sept. 1941. Passengers carried in Sept. 1942 totaled 10,149, 565 more than in August and 984 more than in Sept. of last year. For the first nine months of this year, TCA reports increases in three categories over the same period of 1941. Mail transported from Jan. 1 to the end of Sept., 1942 amounted to 1,482,653 lbs., an increase of 501,963 lbs. over 1941. Express totaled 217,476 lbs. in 1942, up 90,307 lbs. from the 1941 figure. Passengers in the 1942 period numbered 76,823, against 63,293 in 1941.

United Air Lines releases estimated figures on express pound miles flown in September, which were about 714,238,000, compared with 306,282,994 in September, 1941, up 133%. Total for the first nine months of 1942 was given as 5,414,119,119 express pound miles, against 2,151,687,985 in the same period of 1941, up 152%. In September, 1942, mail pound miles were approximately 1,267,142,000, contrasted with 642,384,934 in September, 1941, up 97%. For the first nine months of 1942, mail pound miles totaled 9,042,978,660, against 5,278,762,149 in the same period last year, a gain of 71%. UAL reports it now carries about 30% of all express and air mail flown by the country's transport lines.



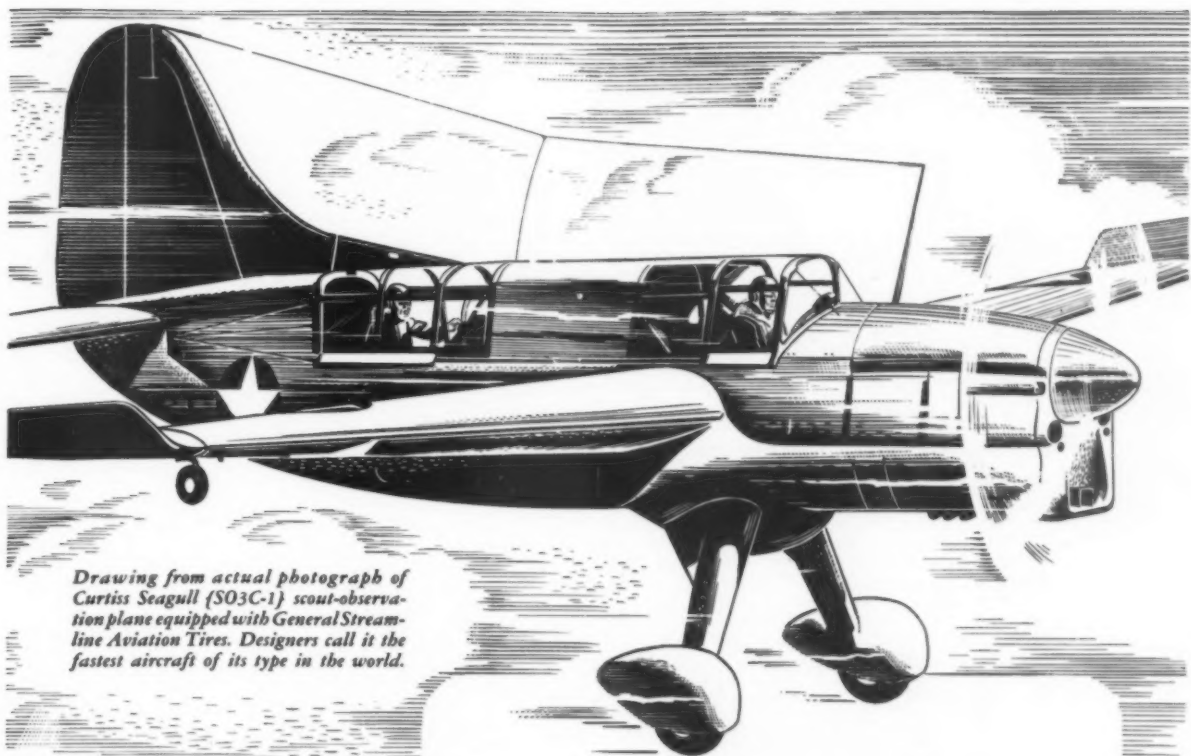
Western Converts: Western Air Lines shows how one of its ships was converted from a luxurious passenger airliner to a war-working cargo transport.

Upper left: Seats are removed and plywood panels are installed from floor to roof. Windows, thus, are blacked out.

Upper right: Forward of the cargo compartment are two seats for transporting Army personnel.

Lower left: Tommy Hauck of Western's maintenance staff painting insignia on the ship. Military planes in battle zones wear an all-white star.





Drawing from actual photograph of Curtiss Seagull (SO3C-1) scout-observation plane equipped with General Streamline Aviation Tires. Designers call it the fastest aircraft of its type in the world.

"The Eyes" of America's Battle Fleet have to sit down on a "dime"... fast

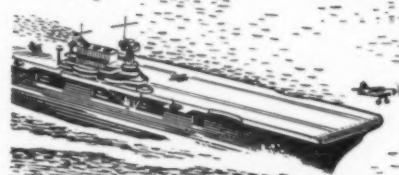
Scout-observation planes for the U. S. Navy have to cover the area in a hurry . . . and the faster they are the greater their scouting range.

While equipped with floats when based on cruiser or battleship . . . it's *the tires* that take the beating when these super-fast Navy "eyes" operate from and return to a carrier or naval land station.

America now has the world's fastest ship-based planes—and General Tires have proved that they have the built-in strength and quality equal to the high speed landings and split-second stops.

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House Group's Accident Report Criticizes CAA

"Procrastination, negligence and general attitude of superiority evidenced by certain Washington officials of the Civil Aeronautics Administration" was criticized Oct. 26 by the Select House Committee to Investigate Air Accidents.

The committee's criticism was contained in its report on the United Air Lines' accident at Salt Lake City on Nov. 4, 1940. Probable cause of the accident, it stated, was the "mechanical failure of the Salt Lake City range station."

CAA officials, the report claimed, failed "to heed the repeated warnings of the Pilots' Association and of United Air Lines officials," failed to provide "the maximum in safety through the erection of an adequate range station, so located, serviced and monitored as to insure the safety of pilots letting down on instruments for a landing at the Salt Lake City Airport; and finally, the approval and establishment by the . . . Administration of a minimum ceiling of 400 ft. and two miles visibility for night landings at this airport under the then existing conditions."

Recommendations

Detailed recommendations of the committee were: (1) the Salt Lake range station should be moved to a safer location, and be so situated as to permit direct approach over the range station for a straight-in instrument landing on one of the runways at the airport; (2) removal of Salt Lake airport as far to the west or northwest as possible to escape the local weather hazards incident to the environs of Salt Lake City; (3) CAA should undertake to make specific rules governing contact and instrument flights in and out of such difficult airports as Salt Lake, and (4) CAB should approve an arrangement of airline schedules such that a minimum number of landings at Salt Lake be required, "but an adequate number for the purpose of handling mail and traffic originating at or destined to that place."

The committee explained that in reporting on the Eastern Air Lines accident at Vero Beach, Fla., it had stated that that accident resulted from a combination of many errors, the absence of any one of which might have prevented its occurrence. The same held true for the UAL accident, it added, which would not have occurred had either one of two errors been corrected: (1) malfunctioning of the range, or (2) failure of the trip to proceed to its alternate at Elko, Nev.

UAL, the report stated, should vest more authority in its dispatchers. In this case, it added, the dispatcher should have exercised discretion and ordered the trip to proceed to its alternate.

Alaskan Air Freight Shows 1st Decline, Other Traffic Up

The first decrease since 1929 in Alaskan air freight poundage was recorded in the year ended June 30, 1942, according to the annual report of the Alaska Aeronautics and Communications Commission.

At the same time, however, pounds of mail carried in Alaska jumped 56%, from 611,422 lbs. in the year ended June 30, 1941, to 954,026 last year.

In general, the Commission reports, the war emergency has stimulated air travel and air operations both in Alaska and to and from Alaska.

Statistics covering 30 Alaskan air carriers showed that freight dropped from 4,947,516 lbs. in 1941 to 4,630,456 lbs. in 1942, a decrease of 7%.

"The decrease in commercial boat shipments to Alaska possibly has considerable influence on the amount of freight handled by the

Alaskan air carriers, especially since the amount of freight shows a most consistent decrease in the months of March through June, 1942," the Commission comments. "Slacking off of operations by mining companies in the Territory due to the war emergency is also a possible influence."

Miles flown in 1942 were 4,932,868, compared with 4,434,232 in 1941, an 11% increase. Number of passengers increased from 41,703 to 57,028, up 37%; passenger-miles rose from 7,918,054 to 11,106,122, or 43%; hours flown up 10% from 40,121 to 44,182, and trips flown down 2% from 19,076 to 18,843.

"It can be stated definitely that the infrequent and irregular boat mail service in Alaska bears now the greatest influence on the marked increase in the number of pounds of mail carried in Alaska," the report said.



Trained by UAL: These women communications students at United Air Lines' Boeing School of Aeronautics are learning to become teletype and radio operators. They will work alongside men in UAL's communications centers.



Protection: To assure further plant protection, Braniff Airways' operations engineering department has designed a fire-fighting unit which can be handled by one man. The initial fleet of five are placed in strategic locations at the company's Dallas operations base. They were designed by Roland Lewis, Braniff operations engineer, and were built under supervision of Crew Chief Frank Stucker (center in above picture) by Mechanics Jim Handley, left, and Bill Surges, right.

CAB Reports on Three Accidents

The Civil Aeronautics Board recently released reports on the probable causes of three scheduled airline accidents.

A United Air Lines' accident at LaGuardia Field on Apr. 11, 1942, was probably caused by "failure of control due to a stall while landing," the Board said. As contributing factors it gave " (1) Failure of the captain to make use of the flaps during the latter stages of landing approach, and (2) presence of ice on the wings."

The UAL plane, landing at LaGuardia, continued on over a bulkhead and fell into Bowery Bay. After passengers and crew had been removed, it sank. Three crew members were injured.

On Mar. 2, 1942, a Pennsylvania Central Airlines plane, landing on a snowy field at Detroit, skidded through a wire fence and continued 237 ft. across a street and into a yard before it came to rest. No one was injured.

CAB gave the probable cause as "the action of Capt. Read in electing to land on the sod which afforded less traction than the runway; in landing in a direction which afforded less usable landing area than would otherwise have been available; and in misjudging speed and distance during the approach under conditions of restricted visibility." Capt. Read stated he elected to land on the sod because such a landing would allow him to extend his landing roll.

A TWA accident at Dayton, O., on June 27, 1942, was probably caused by a "stall resulting from the action of the captain in attempting a landing under conditions of insufficient visibility," CAB said in another report.

CAB claimed that weather conditions at Dayton were below the approved minimums, that the flight had been re-dispatched to Toledo, but that the captain, on his emergency authority, elected to land at Dayton.

Traffic

United Air Lines discloses an estimated 28,401,300 revenue passenger miles flown in September, compared with 28,388,072 in August, and 32,943,600 in September, 1941. UAL attributes this 14% decrease within the year to military use of some of the line's aircraft, and greater use of space for express and mail. In the first nine months of 1942, revenue passenger miles flown totaled approximately 218,314,065, an increase of about 7% over the 204,919,024 figure for the same period of 1941.

Transcontinental and Western Air, Inc., reports the 482,982,000 pound miles of air express operated in August as "best air express month" ever. This figure was 18% more than July, and 169% more than August, 1941. From January 1 through August, 1942, poundage hauled was 135% more than in the same period last year. Increases were said to be due almost entirely to war traffic.

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Ready **WHEN YOU NEED IT...**

TODAY, periodic engine check-up and overhaul becomes increasingly important as planes and parts are called upon to do heavier C.P.T. and C.A.P. duty. But extended demands on Franklin service facilities are being more than met, in traditional Franklin style.

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Airline Personnel



Patterson

Whitney

Yoris

Dawson

Murray

McGrath

Maugham

MacLaren

In the Services

O. C. "Bud" Enge, former United Air Lines district traffic manager in Washington, has been promoted from captain to major in AAF's Air Transport Command.

Robert F. Six, president of Continental, has been promoted from captain to major in the Air Transport Command.

Gordon MacLaren, former New York district traffic manager for Northwest, has been promoted from lieutenant j.g. to lieutenant s.g. by the Navy.

Gertrude Dawson, veteran United stewardess, has reported to Mitchell Field, Long Island, for service as a second lieutenant in the Army's newly-formed air evacuation group.

Luther "Luke" Harris, former vice-president-maintenance of Pennsylvania-Central Airlines, has been promoted from lieutenant colonel to colonel. Col. Harris has been assigned as an engineering officer at the Mobile Air Depot, Brookley Field, Mobile, Ala.

M. T. "Rosey" Stallter, former assistant to the vice-president of American Airlines, has been promoted from major to lieutenant colonel. He is with the Air Transport Command in Washington.

Sales and Traffic

Ralph S. Maugham, formerly west coast division manager for a large manufacturing concern, has been named assistant to the vice president-traffic of American. He replaces **A. W. Mitchell**, who was transferred to the company's military operations section.

Clyde S. Fullerton, TWA's Los Angeles district traffic manager, has been named director of the newly-created traffic training division of the company. **Dale Y. Ecton**, guide representative in the tariffs, schedules and research department at Kansas City, has been named Fullerton's assistant. **Earl J. Miller**, district traffic manager at Detroit; **James D. Harrigan**, same position in Washington; **Louis P. Marechal**, same position in Philadelphia, and **Norvel Waldron**, who has been associated with the airline's educational department, comprise Fullerton's staff of field representatives and advisors. **James E. Hawthorne**, Chicago dtm, has been named Fullerton's successor in Los Angeles. **J. W. Bailey**, Chicago traffic representative, will succeed Hawthorne. **M. Denis Murray**, Boston traffic manager, succeeds Harrigan in Washington; **William L. Armstrong**, Detroit traffic representative, moves into Miller's post; **Walter H. Coyle**, New York reservations manager, succeeds Marechal; **Gerald C. Riordan**, chief of New York reservations control, advances to Coyle's post, and **George Brown** succeeds Ecton.

Leo Cafferty, formerly a member of Pennsylvania-Central's reservations staff in Washington, is going to London as cargo and passenger representative for American Export Airlines.

Terrell G. Bonnie, TWA traffic representative at Los Angeles, has been named dtm at Albuquerque, succeeding **John S. Winchell**, transferred to the Intercontinental Division.

Among TWA promotions at Kansas City are: **Corinna Jewell**, named reservations manager, the first time a woman has held the job; **Sanford Casper, Jr.**, named chief reservations control representative; **Pat Cross**, appointed chief reservations representative, and **William Pearson** made traffic dispatcher.

Operations

The following changes have taken place in Trans-Canada Air Lines' operations department: **E. P. "Billy" Wells**, formerly assistant superintendent, Winnipeg, named assistant to the operations manager, Winnipeg;

Capt. B. A. Rawson, formerly assistant operations superintendent Toronto, now superintendent of flight operations, Winnipeg; **Capt. J. H. Sandgate**, formerly chief pilot, Winnipeg, named chief pilot, Lethbridge; **Capt. Frank Young** named chief pilot, Toronto; **E. T. Howe**, formerly chief clerk, Winnipeg, now supervisor of cargo, Winnipeg; **C. R. Williams**, promoted from dispatcher to chief dispatcher at Winnipeg, and **N. J. Humphries**, formerly Lethbridge dispatcher, advanced to chief dispatcher, Toronto.

Larry R. Geschwind is now station manager for TWA at Indianapolis, replacing **E. E. Kelsey**, now station manager at Chicago.

American announces the following changes: **E. J. Wood** from assistant station manager at Boston to station manager at Hartford; **Hugh Wilson** from assistant station manager at Washington to station manager at Columbus; **H. W. Otto**, from station manager at South Bend to assistant station manager at Detroit; **J. W. Durham** from chief agent at Nashville to station manager at Knoxville; **I. A. Williams** from assistant station manager at Detroit to station manager at St. Louis; **J. P. Higgins** from chief agent at El Paso to station manager at Elkins; **E. M. Cozens** from New York traffic department to New York station manager; **M. K. Davis** from station manager at Tucson to station manager at Buffalo; **W. A. Leckrone** from station manager at Knoxville to Ft. Worth flight operations; **B. C. Fiddler** from Tulsa station manager to Tucson station manager, and **A. L. Jackson** from Abilene station manager to the same capacity at Tulsa.

Ernest H. Whitney, assistant to Vice President Jimmy James of Western Air Lines, has been promoted to operations manager of the entire system.

Richard C. Long has been appointed regional director, Atlantic Division, of Pan American Airways for the United Kingdom, Eire and Portugal. He has been serving as a special representative for PAA.

Donald G. Ogden and **Richard A. Fagin** are now assistant chief pilots of American Airlines at Ft. Worth and New York, respectively.

Louis Kasperek is foreman of Western's newly-expanded instrument shops.

Max Tegerdine, former TWA passenger relations manager at Chicago, has been promoted to station manager at Burbank, succeeding **Bill Lunceford**, who has joined the Air Transport Command.

Samuel M. Hadden, Jr. is United's station manager at South Bend, replacing **Henry K. Vieman**, now assistant station manager at Cleveland.

Chauncey Wright, Pan American's chief flight engineer, has received a three-star gold pin representing 15 years of service with the company.

Miscellaneous

Buell A. Patterson, formerly American's central publicity director in Chicago, has been named publicity director for the company.

Ernest W. Yoris, former Seattle police official, has joined Northwest as director of internal security.

William F. McGrath, eastern regional manager of TWA, has been elected president of Air Lines Terminal Corp. in New York. **W. S. Green**, manager of American Export Airlines' passenger and cargo department, was named vice president, and **W. S. Allen**, the terminal manager, continues as secretary-treasurer.

Lorenz Iversen, president of the Mesta Machine Co. of Pittsburgh, has been elected a director of All American Aviation. **Richard C. du Pont**, **Grover Loening**, **Richard P. Dunn** and **Charles W. Wendt** were re-elected to the board.

John C. Leslie, manager of Pan American's Atlantic Division, has been appointed a member of the committee on operating problems of the National Advisory Committee for Aeronautics.



The Birdmen's Perch

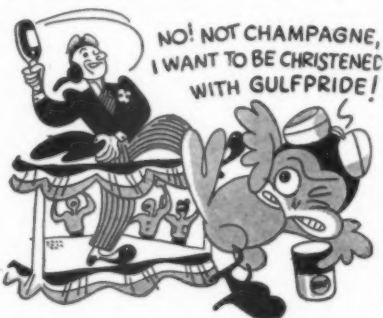
THE NAMES FOR OUR Canary Commando were wonderful, gang!

We wish we had a dozen Oily Boids so that we could call them "Blunderbird," "One Wing Low" and "Rud-derduck."

And even Oily howled at "Luber-ator" and "PB 1/2."

He didn't seem to like "Gasolini" or "Burblebird" or "Airacoma"—but we did!

But the life-size portrait of Oily goes to a girl! Mary Bennett, of Engle-



wood, N.J. sent in the name we liked most...the name that most perfectly describes our 4-F Fowl.

Perch Pilots, meet "FLUTTER," the Oily Boid.

Major Al Williams

alias, "Tattered Wing Tips,"
Gulf Aviation Products Man-
ager, Gulf Bldg., Pittsburgh, Pa.

BRAINTWISTER

A pilot had to fly from Pittsburgh to Detroit on business. He left home in the morning accompanied by his wife, who

saw him off and waited at the airport until his ship was out of sight. He flew to Detroit non-stop, and the first person to greet him was his wife. She'd not travelled by train, road, or plane. How did she get to Detroit?

When you send your post card for the answer, send us your brain-twister, too. Complete with answer, please.



SOME-DIAL!

You Perch Pilots who fly twin-engine jobs will soon find it much easier to check your instruments.

A new whingdinger of an instrument combines the readings of three instruments (2 tachometers and a synchroscope) on one dial. You get an rpm reading on BOTH engines and see how much out of synchronization they may be at a glance. Removing the two unnecessary dials disposes of deadweight, and the remaining dial does more work.

Lubricants refined by old-fashioned methods had parts which made sludge and parts which formed carbon—in addition to the part which did the actual lu-



bricating. To get rid of these unnecessary parts of petroleum, Gulf engineers devised the Alchlor Process, which removes more of these two deadweights from Gulf.

pride. And the remaining oil does more work.

Better try it.

POWER OF THE PRESS DEPT.

It's been some time since we felt obliged to open the musty doors of our POTP Dept.

But we'd like to remind you of a letter from "Great Circle" Gribbin, in July's Perch. Part of his whopper said, "A while back you mentioned a tailless plane without a fuselage. It seemed like the wrong approach to a good idea. A wing is bound to contribute to drag. I tried to solve the problem of drag in a different way. I made a tailless plane without a wing."



Now read this, from a recent newspaper:

"A wingless airplane dubbed the 'Flying Flounder' has been successfully flown more than 62 times by its inventor. The plane looks like an elliptical pancake and does 190 mph."

Well?—

Ber he used Gulf Aviation Gasoline, too.

Gulf Oil Corporation and Gulf Refining Company...makers of



OIL IS AMMUNITION—USE IT WISELY!



Pan American Airways reports for its latest 30-day period 8,783 passengers traveling on its inter-American routes, 11% above the figure a year ago, and 77.5% more than volume two years ago. In the Eastern division, 801,885 miles were flown during the reporting period, compared to 477,523 miles during the same period of 1941. Flights of PAA's

Clippers between the Americas increased 67% over last year.

All American Aviation, Inc., reveals traffic over its air pick-up routes reached a new high in September. It reports air mail as 32,158 lbs. in that month, 14,375 lbs. more than September, 1941. Air express was 14,757 lbs. in

September, 1942, 10,825 lbs. more than in September, 1941.

Western Air Lines, Inc., Burbank, Cal., after provision for Federal income tax, had net profit for the six months ended June 30, 1942 of \$78,600, compared with \$59,333 for the same period in 1941.



Visits CAL: L. Welch Pogue, left, chairman of the Civil Aeronautics Board, shown with Terrell C. Drinkwater, executive vice-president of Continental Air Lines, during a recent inspection tour of Continental's new \$300,000 hangar and Army modification center at Denver.

An Open Letter to Ed Bern

Dear Ed:

You and all of us have loved and fought for American Airlines for a long time. You're leaving now and, selfishly, we're sorry and, selfishly, we hope that you are too. But even more than that, we're for you and we wish you well.

You have done a job here from the very start. And if we know you, you'll keep right on doing a good one where you're going. Few people have contributed as much as you have to American or to air transportation. But your abilities, now, are sorely needed in another place, and reluctantly we realize that you have to go. You go with our "Godspeed!"

You've always brought a sincerity - a driving, vital, utter sincerity - to everything you've done. Your new association with Howard Hughes will be brightened by it - just as ours with you has been. You've been among friends, Ed, and you take with you the very best wishes of every one of them.

ALL OF US AT AMERICAN

[This advertisement is a reprint from the *Flagship News*, house organ of American Airlines, and is paid for by employees of American Airlines]

WMC Certifies CAA Occupations For Deferments

War Manpower Commission has certified that service of Civil Aeronautics Administration "is an activity necessary to war production," and Selective Service System headquarters has issued Occupational Bulletin 31 recommending that local draft boards give careful consideration to requests for deferment of certain CAA personnel.

The bulletin covers: Airport Service, including the development of landing areas; Federal Airways Service, including establishment of aerial navigation facilities and technical aviation development, and the Safety Regulations Service, including promulgation and enforcement of safety regulations and engineering analysis of military aircraft.

"The CAA, as a governmental agency, has been called upon to expand its services both in the U. S. and abroad, to provide for the maintenance and operation of aerial navigation facilities, and otherwise to provide for the rapid and vital expansion of air transportation as a necessary adjunct to the war programs of the Army and Navy air services," the bulletin says.

A list of occupations which accompanied Occupational Bulletin 21, under Air Transportation Services (airlines), was referred to as also covering CAA. (This list appeared in *AMERICAN AVIATION* Oct. 15, page 26).

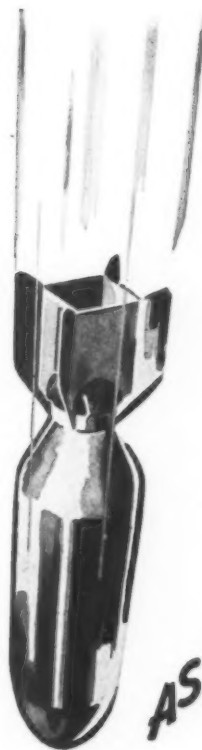
"In classifying registrants employed in this activity, consideration should be given to the following:

"(a) The training, qualification or skill required for the proper discharge of duties involved in his occupation;

"(b) The training, qualification or skill of the registrant to engage in his occupation; and

"(c) The availability of persons with his qualifications or skill or who can be trained to his qualification, to replace the registrant and the time in which such replacement can be made."

HOW THE AVIATION INDUSTRY CAN FURNISH BOMBS



AS WELL AS PLANES

THERE'S a bomb in your cellar or attic. No, it doesn't look like a bomb. Right now it's broken garden tools . . . discarded toys . . . worn-out pots and pans . . . junk. But every piece of scrap will make twice its weight in fighting equipment . . . 100 pounds of scrap will furnish basic metal for a bomb big enough to sink a destroyer. Get those bombs out of your cellars today, and the planes we're all building will deliver 'em to the Axis!

When You Quit Work Today, Do This

If you live at home, get busy and collect all the scrap you can find. You'll be surprised to see just how much you have on hand. Then call a junk dealer, or your local scrap collection agency. If you don't know where to get in touch with the scrap collection agency, call your local newspaper and they'll tell you.

If you live in a boarding house or apartment, team up with the other folks in the

house. Offer to do a clean-up job for the householder and dig out all the scrap. **If you have folks back home,** write today and tell them to get their scrap into action . . . *quick!* America must have scrap!

What the Aircraft Industry Can Do

Employment figures for the industry are secret. But there are certainly upward of half a million employed. And if each family of half a million aircraft workers were to collect the national family average of 104 pounds of scrap, it would add 50 million or more pounds to our war effort . . . enough to blast Hitler, Tojo and Mussolini straight to hell. And the only cost is an hour or so of our time! That's not asking much when we know what our friends, brothers, sons and husbands are up against *out there*. How about it, aircraft men and women? Let's stop "letting George do it." Let's do it ourselves . . . **TODAY!**

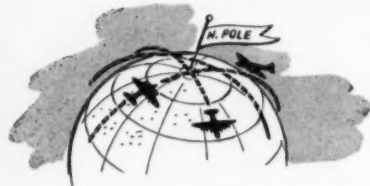
Published in the interests of the
National Scrap Salvage Drive by
The Glenn L. Martin Co., Baltimore.



THE TOMORROW YOU'RE FIGHTING FOR!



Every man
-AN "ADMIRAL BYRD"



The Crossroads of Tomorrow will be the North Pole. When you say, "I'm going over the top in the morning"...you'll mean over the top of the world, by air...to other free countries on the other side of the earth. Airline fares* will read to Calcutta \$176 ...Moscow \$124...London \$108.

You'll sit warm and cozy beside an observation window and wonder if it's really 60 degrees below outside. You'll marvel at the aurora borealis. For you'll be "upstairs" in the stratosphere, where it's the same temperature over the North Pole as over Nevada.

You'll be free to go where you please and when you please...after Hitlerism is smashed! Today we're all working and fighting for that freedom. Nothing else matters much now but doing our assigned task.

Western Air's assigned task, today, is two-fold: Flying military cargo planes for Uncle Sam and operating essential airline service.

*From Los Angeles, for example, at a possible rate of 2 cents a mile, based on present air developments.



**WESTERN
AIR LINES**

America's Pioneer Airline

General Offices: 510 West Sixth Street, Los Angeles, California

Actions of the Civil Aeronautics Board

Order No. 1982, Oct. 14, 1942: Permitted the CAA Administrator to designate identification marks for aircraft to fly in certain restricted areas, provided such aircraft marking has the approval of the armed forces, and that it shall be subject to Civil Air Regulations as though the aircraft were marked "NC."

Order No. 1983, Oct. 16, 1942: Authorized Braniff Airways, Inc., to suspend service temporarily at Ponca City, Okla., on its route No. 9, because of the small amount of "priority traffic" originating there, and "limited number" of aircraft available for such service.

Order No. 1984, Oct. 17, 1942: Amended Order Serial No. 1967, issued Oct. 6, 1942, which authorized temporary suspension of services of Inland Air Lines, Inc., route 35, from Oct. 6, 1942 to Oct. 14, 1942, because of repairs, to permit extension of this period to Oct. 20, 1942.

Order No. 1985, Oct. 17, 1942: Granted permission to Caribbean-Atlantic Airlines, Inc., to intervene in the applications of National Airlines, Inc., (Docket No. 783), and Eastern Air Lines, Inc., (Docket No. 789), for temporary certificates of public convenience and necessity in consolidated proceedings.

Order No. 1986, Oct. 17, 1942: Permitted Pan American Airways, Inc., to inaugurate service at Caripito, Venezuela, through the use of new airport located about one mile east of Maturin, Venezuela. To start immediately, subsequent to filing of notice of intention to start within 30 days, on Sept. 18, 1942.

Order No. 1987, Oct. 21, 1942: Denied petition of Universal Air Freight Corp., dated Oct. 14, 1942, for rehearing and reconsideration of order of the Board dated Sept. 15, 1942, Serial No. 1941, requiring this firm to desist from violations of the Civil Aeronautics Act of 1938.

Order No. 1988, Oct. 21, 1942: Approved agreement between Pan American Airways, Inc., and Compania Nacional Cubana de Aviacion, regarding charter trips between Miami, Fla., and Balboa, Canal Zone.

Order No. 1989, Oct. 21, 1942: Denied request of the Boston and Maine Railroad Co., and the Maine Central Railroad Co., to separate the issues in the hearing on their application for acquisition of control of Northeast Airlines, Inc.

Order No. 1990, Oct. 22, 1942: Amended Order No. 609-561, which suspended for 60 days private pilot certificate No. 23715-40, held by Philip H. Browne, so as to permit respondent to pilot civil aircraft while receiving instruction, and to pilot civil aircraft on military duty.

Order No. 1991, Oct. 22, 1942: Amended Order Serial No. 1928, issued Sept. 11, 1942, to consider only Miami, Tampa or St. Petersburg, Fla., as possible terminal points in the U. S. for Pan American-Grace Airways. At the same time, denied all requests for consolidation of other applications and dockets with this proceeding.

Order No. 1992, Oct. 22, 1942: Waived requirements in the case of Antonio G. Mendoza, Jr., citizen of Cuba, of section 20.142(b), requiring citizenship in a country which grants reciprocal commercial pilot privileges to citizens of the U. S.

Order No. 1994, Oct. 24, 1942: Directed that exhibit A-6, offered in the proceedings which authorized American Airlines, Inc., and Braniff Airways, Inc., to conduct service to and from San Antonio, Texas and Laredo, Texas, and in which Braniff Airways, Inc. applied for certificates of public convenience and necessity, be withheld from publication, because it contains information affecting national defense.

Order No. 1995, Oct. 24, 1942: Denied petition of Kansas City Southern Transport Co., Inc., and Kansas City Southern Railway Co., requesting the Board to suspend proceedings until after the war in the case of applications for certain certificates and amendments of certificates of public convenience and necessity of National Airlines, Inc., Delta Air Corporation, Braniff Airways, Inc., Eastern Air Lines, Inc., and Chicago and Southern Air Lines, Inc.

Order No. 1996, Oct. 26, 1942: Modified order of March 23, 1942, making it unnecessary for American Airlines, Inc., Transcontinental and Western Air, Inc., and United Air Lines to continue filing monthly reports on operations affecting Long Beach, Cal.

Order No. 1997, Oct. 26, 1942: Denied petition of Waterman Airline, Inc., for reconsideration of Order Serial No. 1962, dated Oct. 2, 1942, which dismissed the application of Waterman for Caribbean routes.

Order No. 1998, Oct. 27, 1942: Granted permission to American Trucking Associations, Inc., to intervene in the proceeding investigating certain contracts between Railway Express Agency, Inc., and a group of airlines.

Order No. 1999, Oct. 26, 1942: Reinstated application of Colonial Airlines, Inc., for temporary certificate of public convenience and necessity, Docket No. 781, under date of Sept. 25, 1942, and consolidated the application with proceeding investigating need for temporary air transportation in the Caribbean area.

Order No. 2000, Oct. 27, 1942: Rescinded Order Serial No. 1889, issued Aug. 11, 1942, which authorized United Air Lines to suspend service temporarily on route one, to and from Rock Springs, Wyo.

Order No. 2002, Oct. 28, 1942: Rescinded Order No. 1760, issued May 26, 1942, insofar as it authorized temporary suspension of Transcontinental and Western Air, Inc., service between St. Louis, Mo. and Cincinnati, O.

Order No. 2003, Oct. 30, 1942: Approved agreement filed under section 412(a) of the Act by and between Continental Air Lines, Inc., and Inland Air Lines, Inc., relating to overhaul of Inland's equipment at Denver, Col.

Order No. 2005, Oct. 30, 1942: Granted permission to Caribbean-Atlantic Airlines, Inc., National Airlines, Inc., American Export Airlines, Inc., and Waterman Airline, Inc., to intervene in application of Chicago and Southern Air Lines, Inc., for authorization to operate transport service between New Orleans, La., and Caribbean and Central American points.

Order No. 2006, Oct. 31, 1942: Reinstated application of Compania Nacional Cubana de Aviacion, S. A. for temporary certificate of public convenience and necessity, and consolidated this application with several others regarding transportation in the Caribbean area.

Order No. 2007, Nov. 2, 1942: Amended Order No. 1979, issued Oct. 15, 1942, regarding trans-Atlantic flights of Pan American Airways, Inc., so that restrictions to changes in service are further modified.



STOPS 'EM ON ICE

One of the slipperiest problems up North was the landing of 25-ton planes on glare ice or hard packed snow without an expensive crack-up. The ice formed a perfect lubricant for rubber tires regardless of the tread design—turned the tires into sled-runners, sent the plane into the next county.

This problem that had to be solved was put up to United States Rubber Company engineers.

Result: a tire that has turned ice fields into landing fields—the U.S. Royal "Ice Grip Tread" covered with rubber buttons, the outside rows of which have crimped steel "bottle caps" imbedded in them. These sharp metal edges bite into the ice and snow when the brakes are applied and, it is reported, stop the plane as quickly on ice as ordinary tires do on a dry concrete runway.

Do you have a tough airplane tire problem? There is a "U.S." Airplane Tire engineer near you ready to help. Use him!



ONLY "U.S." HAS THESE EXTRAS

- 1 **TEMPERED RUBBER TREAD**—A tougher, scuff- and heat-resistant tread compound for airplane tires.
- 2 **SAFETY BONDED RAYON CORD**—A lighter, more resilient, airplane tire material with tremendous impact resistance and stamina at high temperatures.
- 3 **FIELD AIRPLANE TIRE SERVICE**—A force of "U. S." field engineers in every part of the country is promptly available for engineering and technical help on tire and undercarriage problems.
- 4 **"U. S." ICE GRIP TREAD**—A tread of revolutionary design and performance for snow- and ice-covered landing surfaces.
- 5 **STATIC GROUND CONSTRUCTION**—Conductive rubber construction grounds static electrical charges upon contact with the ground. This safety feature is available in all U. S. Royal Smooth Contour and auxiliary wheel tires.

RAYON IN EVERY "U.S." TIRE — A "U.S." TIRE FOR EVERY PLANE



UNITED STATES RUBBER COMPANY

AIRPLANE TIRE DEPARTMENT • 6600 E. JEFFERSON AVE. • DETROIT, MICHIGAN

Airlines Need Specialized Airport Design

Expandable Installations to Supplant Temporary Crutches Recommended by Writer

By E. J. FOLEY

AIRCRAFT, our transportation vehicles; personnel, our operating and maintaining forces, and airports, our termini of activity, are the three obvious major elements which will determine the future of our air transport networks.

Evidently, failure of airport design to attain the same level of operable efficiency as the other two factors may threaten the whole picture. There is more to an airport than acreage, accessibility and municipal revenue.

Present thought dictates the inclusion of the following in our definition of an airport: adequate area for runways; convenience to the metropolitan section; freedom from hazardous obstructions; municipal construction and operation as a "utility" for the service of air carriers and the traveling public alike. We've no quarrel with any of the foregoing, as far as it goes; adequate area and freedom from obstructions are self-evident needs.



E. J. Foley

Regarding convenience to the metropolitan area, this factor loses none of its importance with the passage of time and growth of the industry. But its achievement may require different solutions if airline growth to phenomenal proportions is reached. The limited availability of adequate obstruction-free property convenient to the city's heart has already dictated in several cases that a second municipal airport sized to fit tomorrow must forego the simple accessibility of the first.

Helicopter Useful

The inevitable lengthening of these terminal exit and entrance routes may give place to the limousine helicopter, a capacity version of Igor Sikorsky's present model. Speedy service from airport to building roof-uptown, midtown and downtown might well warrant serious consideration of this point.

Slightly more "Buck Rogerish" is the suggestion that fuselage be made demountable and upon arrival be transferred to subway or surface carriages for uninterrupted delivery of passengers. It appears to us that the air transport industry might do well to consider no idea too revolutionary.

The enduring importance of convenience as an airport design consideration should be impressed upon all municipal governments. In particular, we are thinking of two midwestern cities about to launch airport construction projects of five million dollar size. Basic passenger and public appeal can

best be assured if they provide some effective transportation connections to the airport, such as a subway or the like.

The point of municipal construction and operation and the pro-rated rental charges to airline tenants is fraught with political red tape entanglements. Even at this, it may be the best all around solution of the problem. Private or corporate ownership of terminal airports we don't think a probability even in the future.

The special maintenance airport, suggested in these columns some months ago, might be adaptable to either of these techniques of initiation. We still think it a basically sound concept for future planning in spite of the increased traffic loads it would obviously produce. However, for the purpose of this paper, we revert to the concept of an all-purpose airport for illustration.

Where we differ from present municipality practice in solving the

airport problem is in facility architecture, design, layout, etc. It appears frequently that "planning" assumes airport building and facility design to be cut and dried Renaissance architecture. Whether such decisions result from political ties or not is interesting but beside the point. Unappreciated, the difference between mosques and maintenance hangars, between skyscrapers and skyliner terminals, can and has cut airport efficiency and utility tremendously.

That phase of airport design which has to do with adjacent unobstructed areas, runway lengths, parallels and the like lends itself to simple determination. Take-off runs, climb rates and other computables are the determinants and so permit us to neglect this self-evident side of the story.

But terminal building layout, handling facility provisions and maintenance accommodations aren't problems to be solved by pretty facades, expanses of gleaming stainless steel and eagles poised for flight. Symbolic though these things may be of the order, polish and "glamour" of the industry, it's time that we reduced our airports to a functional level as we hope to do in aircraft and personnel.

Functional airport design demands open-minded, cooperative specialized approach to the problem. Unhampered by the conventions of the profession, the planning of such an attacking force could produce an airport—the ultimate in utility shorn of gingerbread, such as area-destroying lagoons, etc.

Possible basis for primary and

detail design would be joint effort led by airport layout specialists aware of the transport medium they are to house, its peculiarities, its needs. Just offhand, we can think of two firms presently operative who could contribute much to such an effort; quite as casually, it appears to be a wide open field for expanded effort.

Attending this energizing element, we suggest two active ingredients and a consulting proprietorship. Active ingredients: the maintenance and handling-wise airport engineering groups of the airline tenants-to-be and a foresighted, aviation-specialist equipment builder, best represented in our minds by Herb Anderson's Aviation Division of Whiting Corp. The consulting proprietorship is properly the role of the municipal government. In realization of and accession to the airline needs, the municipality must "decorate" to the tenants' taste; assuring adherence to or deviation from the building codes as common sense and functional design demand.

Specific Problems

Certain specific problems, appropriate to the airport of tomorrow and food for thought in line with the above basic design technique, suggest themselves for our consideration.

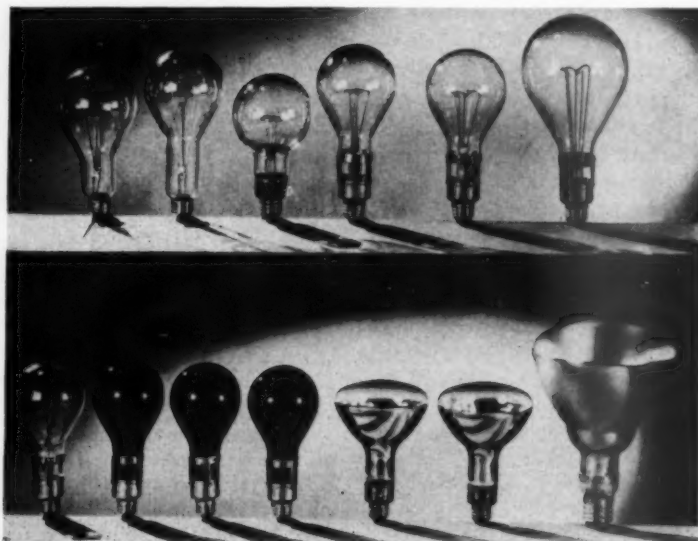
Few runways in the nation today could carry the load concentrations evident in a 200-ton land plane. Surely such runways could be produced through the simple expedient of necessary thickness determination and construction in accordance. But do we want to retain this runway element? The load distribution possible through the use of tracks provides quite a satisfactory solution from the strength standpoint and a potentially better solution from a long range viewpoint.

The airlines themselves may presently feel that the very word "track" implies fixed position, inflexibility of maneuvering, etc. We think it not too early to talk of switches and track networks on loading and handling aprons, in hangars, even on runways. Limit switches could control positioning, relieving the flight crew of any allied problems. Incidental to this handling medium could be the advantage of possible lateral movement of aircraft by track and supporting truck combination which would of course assume loads from the landing gear.

Natural possibility of this practice would be the "balance weighing" of the loaded aircraft on special scales built into the track layout.

Thinking only a little further leads us to the idea that landing gear may be eliminated entirely. The use of the same powered "handling" under-truck (equipped with appropriate aircraft attachment means, shock mounting and necessary accelerating and decelerating means) on the runways

(Turn to page 50)



New Heat Lamps: Here is a complete new line of infra-red heat lamps, designed in keeping with WPB limitations, and announced by the Birdseye Division of the Wabash Appliance Corp., Brooklyn, N. Y. The line includes six clear types, three ruby types and four reflector types. All employ the M-type tungsten filament for uniform heat distribution and have their bases reinforced with asbestos lined mechanical straps to withstand the temperatures of tunnel installations. Pure silver lining sealed inside the bulb is used for the reflector type for protection against dimming and tarnishing by fumes or dirt. Average burning life on all is in excess of 6000 hours.

Electronic Announces New Two-Way Radio

A new two-way radio is announced by Electronic Specialty Co., Los Angeles, manufacturers of the Ranger line of aircraft radio equipment.

Consisting of three separate units,



the equipment includes Model 503 power supply, operating from the ship's 12-volt battery; a Model 110 receiver that has both 195-410 KC band and a "spot" 3105 KC pre-tuned frequency; and a Model 206 10.5 watt output transmitter that operates on 3105 and 6210 KC. The units are connected by flexible cables for installation adaptability. In addition to the "spot" frequency, the receiver is equipped with a two-way interphone circuit. The three units weigh 19 pounds 2 ounces.

Advantages Claimed for New Hose Clamp

The new aircraft and industrial hose clamp being manufactured by Huntington Precision Products, Huntington, W. Va., division of Adel Precision Products Corp., claims the advantages of fewer parts, simplicity of operation without special tools and uniformity of pressure.

A wrap-around self-locking arrangement eliminates bolts, nuts, binding screws and rivets. All around uniform pressure is claimed since there is no focal locking pressure to cause bulges, bends or excessive stress. Provision is made for safety wiring although laboratory and service tests indicate it to be unnecessary. Made of stainless steel, the clamp may be re-used.

PSM Circuit Breaker

The new Klixon PSM Circuit Breaker, recently announced by Spencer Thermostat Co., at Attleboro, Mass., has the same mounting dimensions as the standard AN mechanical toggle switches. This breaker permits space saving and more convenient operation through the possible close banking of switches with breakers directly below on the same panel. The PSM is a disc-operated device with manual reset which gives shock-proof and vibration proof protection against overload. It is not affected, however, by transient shorts. Ample rupturing capacity is provided and the unit is available in close, convenient ratings up to 35 amps. Self-locking inserts for mounting are standard and either plain or luminous tipped reset buttons are obtainable.

Checks Moisture Content of Wood

According to Moisture Register Co., 5117 Kinsie Street, Los Angeles, the manufacturer of two models of Moisture Register, an accurate check of wood moisture content made with these devices can minimize or eliminate warping, cracking, shrinking, etc., in aircraft wood construction.

Direct reading is on a dial to 0% moisture. These units weigh only 5 lbs. each. One is for regular lumber; the other will accommodate plywood of less than 1/8 inch thickness. Smooth electrodes are used on the contact surfaces and injury risk is greatly reduced.

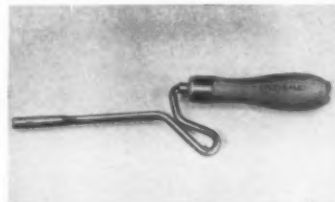
Floating Anchor Nuts Introduced by Boots

Providing the "float" accommodation and also the snap-in and out-features as in the regular gang channel, a line of specially designed-base Floating Anchor Nuts is now available from Boots Aircraft Nut Corp., New Canaan, Conn.

Floating one lug two-rivet nuts, floating right-angle nuts and floating plain anchor nuts are included, and in all cases, the base will be fur-

Speedball Driver

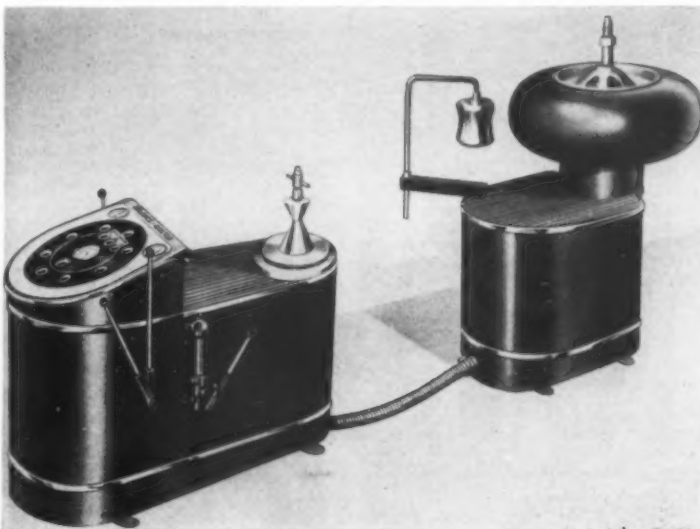
Recently announced by Aero Tool Co., Burbank, Cal., is a new high speed ball bearing driving tool now known as Aero Tool Speedball Driver. According to the manufacturer, the use of this tool permits speedup in jobs involving screw driving, countersinking and burring. Replaceable tips, conveniently



stored in the handle, give the tool this wide variety of uses. The driver can be supplied in several shapes for special work with tips for Phillips screws, slotted head screws, set screws and for burring and countersinking jobs. A tapered shank on the tip allows easy removal but does not permit the tip to turn in the tool.

nished with regular rivet holes, dimpled countersunk rivet holes or plain welding base, as desired.

Aero-Wheel Balance Master Introduced



Manbee Equipment Co., Inc., 406 So. Kalmar Ave., Chicago, announces that Aero-Wheel Balance Master, engineered to balance accurately airplane tires, tubes and wheels both dynamically and statically.

Static and dynamic balance are both secured with the wheel in a horizontal position to assure accuracy by eliminating the gravity factor existent in the vertical position.

The balancer as shown is a duplex unit and comes equipped with two wheel mounting heads and static rods. The smaller head takes wheels up to and including 26" tire diameter; the larger head from 26" to 65". Powered with variable speed motors, the balancer will drive the assembly at any speed from 40 to

120 m.p.h. Dummy split wheels for quick and easy tire and tube mounting are furnished with the unit to permit balancing of tire and tube, less wheel.

Indicating lights on the control board show the exact point where tire or tube is out of balance and the hydraulic pressure gage indicates to 1/4 ounce increments the weight that must be added for perfect balance.

A circular sensitive spirit level indicates static balance. Brass contact points riding with the wheel and making contact with a plate when tipping indicates dynamic unbalance give indication of this condition on the control board lights. Both balance determinations may be made in from 3 to 12 minutes, according to the manufacturer.

Equipment Literature

The Cannon Electrical Development Co., Los Angeles, has just issued a new Condensed Catalog Supplement covering the most popular types of electrical connectors.

The catalog deals briefly with the two leading types used in aircraft applications and details more complete information on connectors for radio microphones, sound equipment; power heavy-duty control circuits, public address systems, electronic low-level circuits and small power applications.

The catalog is illustrated throughout its 16 pages.

A new 6-page bulletin, B-3083, describing the use of Precipitron, electric air cleaner, may be secured from Department 7-N-20 of Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa.

Wide application of Precipitron is claimed in factories manufacturing precision engine parts, in the light of its ability to clean circulating air of 90% of all dirt and dust particles.

The new bulletin describes seven outstanding applications with illustrations of each and outline of results. A description of how the unit operates is supplemented by cutaway views of power pack and cells.

An informative catalog just issued by the Hydraulic Division of the Harvill Corp., 6251 W. Century Blvd., Los Angeles, describes in detail the Series 66-2000 Hydraulic Hand Pumps. Designed for interchangeability with other pumps, this series incorporates an unusual piston design which reduces the total number of parts in the entire pump to thirteen.

A 36-page data book, illustrated throughout, presents the features, uses and application techniques for the Castolin Eutectic Low Temperature Welding Process. Offered by Eutectic Welding Alloys Co., 40 Worth Street, New York, the publication explains in detail the basic process, where it can be used to advantage for fabrication and reclamation, what metals can be welded and what alloys should be used, how to order alloys, etc.

The Precision Scientific Co., 1736 No. Springfield Avenue, Chicago, Ill., announces publication of its Catalog 700, "Apparatus for Testing Petroleum Products." This volume, comprehensively indexed and illustrated, covers 96 pages, 8 1/2" x 11".

Presented are detailed data on apparatus for standard methods of testing asphalt, bituminous materials, automotive and aircraft fuels and lubricants conforming to specifications of ASTM, Federal Specification Board, British Petroleum Institute, and other bodies. Also included is descriptive information on many laboratory utilities plus an up-to-date compilation of data on thermometers for petroleum inspection.

A 96-page catalog, of which 20% represents strictly aircraft products, has just been issued by Manufacturers Screw Products, 216 W. Hubbard St., Chicago, Ill.

Dimensional data are presented on AN hex nuts, machine screws, sheet metal screws, cotter wood screws, setscrews, washers, etc., as well as commercial screw products of all types, and screw specialties.

NWLB Gets Final Wage Briefs; Hearing and Decision Due by Jan. 1

FINAL briefs on the West Coast aircraft labor situation involving nine major companies are now in the hands of the National War Labor Board. A date is to be announced soon for hearings in Washington, after which a decision is promised by WLB before January 1.

CIO, AFL and company union workers directly involved are building about 65% by weight of the nation's combat air frames at the Boeing, Douglas, North American, Lockheed, Vega, Northrop, Vultee, Consolidated and Ryan factories. Likewise affected, although unrepresented at hearings, are some 1200 aircraft parts subcontracting, processing and accessory firms. These will have to conform their wage scales to the NWLB decision if the prime plants raise rates again, or lose their labor to the prime plants. On the basis of an average family of three, the income of more than 1,200,000 people on the Pacific Coast is therefore at issue.

Labor has asked that as far as wages are concerned the decision should be retroactive to last July 6 when the stabilization conferences began. Management has submitted a stabilization formula based on 15 months of study and actual experience in company-union negotiations, intended to meet today's intricate manpower, production and economic problems. Hence this decision is among the most important in the Board's history. Out of it must come a pattern sound enough to endure all stresses.

OPA Reconciled

Sessions last July at Los Angeles broke down under a hot cross-fire from the Office of Price Administration which then felt a responsibility to maintain price ceilings on military items, and War Manpower Commission, charged with controlling labor migration. OPA now seems reconciled to the delegation of military procurement policing to the armed services, who are the sole customers. WMC found it could not gracefully presume that NWLB will exceed a Presidential Order of October 3, 1942, to the effect that wages must not be altered except to: (a) Correct maladjustments or inequalities; or (b) Eliminate sub-standards of living; or (c) Correct gross inequities; or (d) Aid in effective prosecution of the war.

The conference reconvened at Los Angeles Oct. 12 with the understanding that matters strictly concerning wages would first be submitted without argument for transmittal to NWLB, to which jurisdiction had been transferred by WPB. For the sake of continuity Paul R. Porter, who had represented WPB in conducting the July conference, was assigned again as chairman.

After the record on wages was established, subject to later briefing and oral argument at Washington, the conference turned to general subjects, concluding on Oct. 27.

Throughout the 1942 conference labor demanded the scale current at the Ford Willow Run plant, which ranges from 95c to \$1.60 per hour as compared with the West Coast average aircraft scale from 60c for beginners to \$1.15 for experienced workers in the lower job classifications. Such a blanket increase would involve an estimated \$100,000,000 annual raise for West Coast aircraft employees aside from almost an equal aggregate in the hundreds of satellite enterprises. This amount is about twice the net profits of all nine prime plants for 1942, according to a study by Hares, Ltd., New York investment firm.

Management presented a ready-to-go wage stabilization plan upon which its experts had worked since June, 1941, and which it maintained "would eradicate the maladjustments and inequalities which then existed and to a certain extent still exist in the industry." The plan does not propose a general wage increase, but recognizes that the blanket raise of 10c per hour which was generally adopted last July actually accentuated inequalities between various job classifications. These it proposes to correct, with recommendations of increases in specific brackets based on turnover observations and actual experience.

When management began research on job classification it found 1154 individual factory job titles in use. These were finally reduced to 119, and these jobs evaluated. Thereafter, this long step toward wage stabilization was gradually put into effect at North American, Northrop, Consolidated and Vultee.

"By June of 1942 the committee (of management experts) considered that it had obtained sufficient data through this actual application and experience to form the basis of a constructive revision of the original plan," management told the War Labor Board.

This was the final, comprehensive plan which management presented, together with charts showing how the plan can be adapted to the wage structures in each California plant.

Labor complained at the October meetings about provisions in job classifications which permit employers to divide specific jobs into classes accord-

ing to merit, production or experience with the results that the top wages for such job may be paid to only a portion of the people doing like work.

This objection represented a fundamental difference of viewpoint. Having already relinquished the right to arbitrarily fire an employee, management still clings to its prerogative to use its own discretion in the paying and advancement of individual workers within fairly broad wage ranges. Labor insists that the effect of this is "to break down the application of collective bargaining procedure by encouraging the worker to believe that the goodwill of his foreman rather than any process of collective bargaining will best secure economic justice for him."

The employers replied, in part. "It is exceedingly important that management be permitted the use of merit increases within the labor grades," adding that a single pay rate is not practical because:

a. The tremendous volume of inexperienced employees need incentives for rapid self-improvement;

b. Many handicapped people who could not get jobs in other industries are being employed despite impaired production;

c. In aircraft building there must be some incentive for those individuals flexible, enterprising and skilled enough to handle several different types of work.

Labor's complaint that aircraft wages fail to support an adequate standard of living were compared with much lower average incomes already approved by WLB in previous hearings. Average annual earnings of aircraft workers on the West Coast were shown to have been \$2321.28 as of June 15, 1942; whereas a WPA survey as of the same date showed the earnings necessary to maintain a family of four in health and decency in Seattle were \$1607.42 and in Los Angeles \$1541.20.

Up 24%

It was further shown that the straight time hourly rate of Los Angeles aircraft workers rose 24% from January, 1941 to August, 1942, during which time the cost of living rose 17.9%. On the basis of "takeaway earnings" which include overtime, the rise of income in the same period was 30.1%.

At San Diego the "takeaway earnings" in the same period rose 41.8% while living costs gained only 21%.

The same factual approach to labor's argument that wage increases are necessary to stop labor turnover revealed that

Aviation Corp. Nets \$3,671,716

For the nine months ended Aug. 31, 1942, The Aviation Corp., New York, N. Y., reports consolidated net profit after estimated taxes at \$3,671,716, equal to 64c on each share of capital stock. This compares with \$1,459,649, or 25c a share in the same period of 1941.

Consolidated net sales in the 1942 period amounted to \$29,635,211 against \$11,727,780 in the 1941 fiscal year. Federal tax provision for 1942 totaled \$4,700,000, contrasted with \$578,280 in 1941. Company pointed out that "these consolidated earnings do not include the corporation's equity in the undistributed earnings of subsidiaries not consolidated," such as Vultee Aircraft, Inc.

To show the trend of sales, AC selected the net sales figure as of May 31, 1942, which was \$17,423,296. This revealed sales of \$12,211,915 in the third quarter of this year alone.

while adjacent shipbuilding companies were consistently paying higher wages than aircraft, the shipbuilders were experiencing a still higher rate of terminations than aircraft.

Having thus established that aircraft's labor turnover gave no signs of being attributable to wage structures, management at the same time conceded that aircraft wages need upward adjustment in spots in order to maintain a fairly competitive position in a rapidly vanishing labor market.

Comparative Scales

The following table of comparative industrial scales was displayed:

Los Angeles airframe industry\$1.80
Los Angeles manufacturing95c
Los Angeles shipbuilding\$1.24

The same differences were indicated in comparative "takeaway earnings."

Accordingly management submitted that since their competitors are now prohibited from further raises, aircraft would not be "feeding" inflation if it raises some of its rates for stabilization purposes.

Generally, the other factors which have contributed to an alarming increase in labor turnover have been listed as follows:

a. Selective Service withdrawals and enlistments;

b. Tire and gas rationing;

c. Related housing problems;

d. Publicity given the possibility of wage and job freezing since April, 1942.

Boeing has been the chief sufferer in labor losses to adjacent industry because of wage differences. Hence the Boeing proposal was separately presented at the October conference and advocated a scale nearly equalling the demands of labor. It was supported by turnover figures twice as high as the California companies. Within the last nine months the Boeing Seattle plants have had a 100% turnover.

Regarding the one "open" restriction of the October 3 Executive Order, authorizing any wage action which will aid effective prosecution of the war, management said:

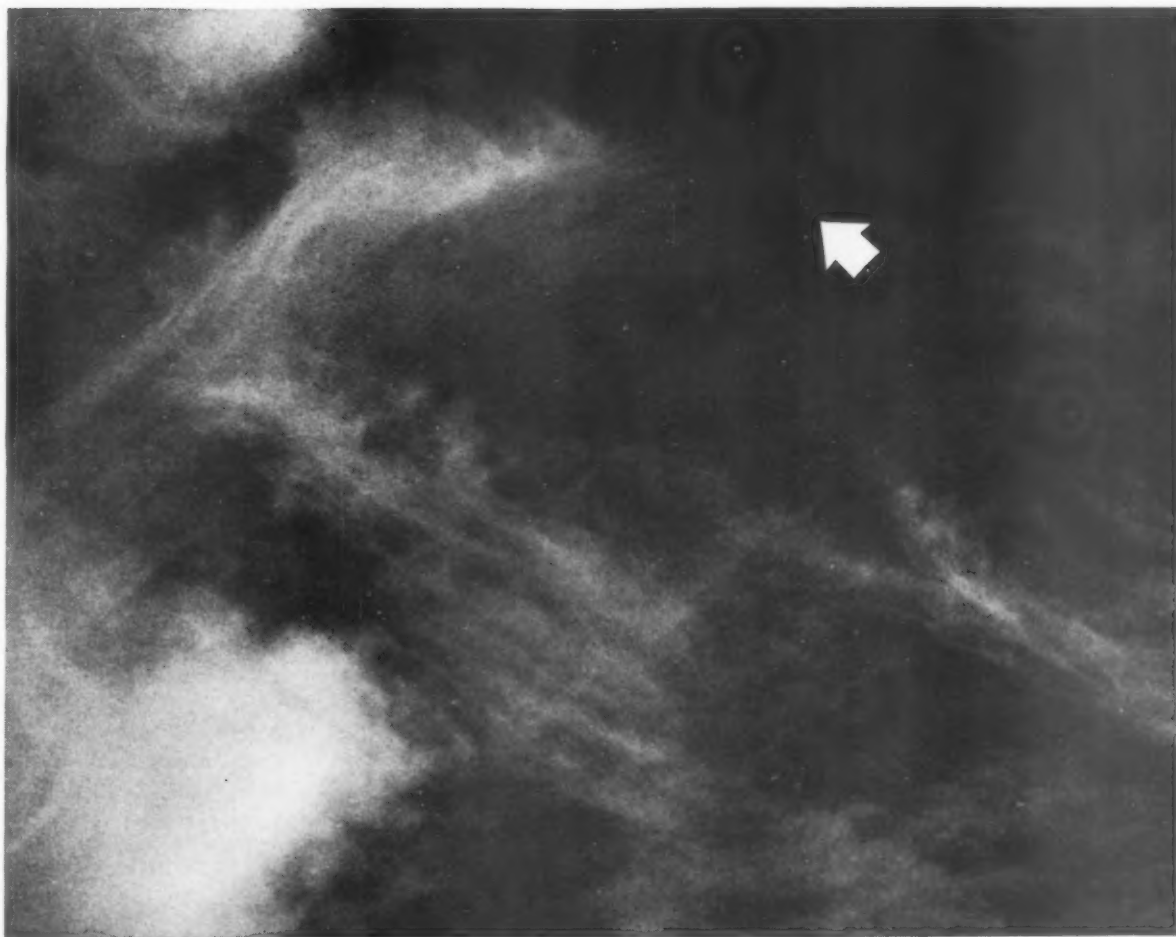
"Wage increases to men and women in war production industries, who have continued to maintain their peacetime standards of living, are not necessary to maintain morale in war production."

"To contend that they are is to question the patriotism of American workers."

Throughout the conference, women were conceded equal treatment in all respects, with the expectation that payrolls will eventually be 65% feminine.



Personnel Transport: Cessna Aircraft Co. has developed this twin-engine personnel transport, the C-78, to provide rapid transportation for Air Forces officers. Constructed largely of plywood and fabric around a welded steel tubing fuselage, the plane can be produced rapidly and inexpensively, according to Cessna. The C-78 is similar to the company's AT-17 Bobcat bomber pilot trainer and the T-50 Crane, built for the RCAF.



Photograph of a Flying Fortress—seven miles up

This is the way a Flying Fortress* looks to the enemy, on its way to the bombing objective. At six and seven miles up, an airplane is invisible to the naked eye, and one of the reasons for the success of the Flying Fortress in combat is that it strikes with deadly precision from regions above the effective range of anti-aircraft fire, and beyond the reach of most enemy planes.

Seven miles is 36,960 feet. Problems of flight that high in the air increase in severity with every hundred feet. The air up there is colder than Siberia in winter, and atmospheric pressure falls off sharply. The stratosphere is still a newly discovered country. Until recently, one of the major problems has been the maintaining of communications.

A year ago 19,000 feet seemed to be the ceiling for plane-to-ground voice communication. Above that, somewhere in the thin, biting air of the stratosphere, the radio-telephone died. Radio-telegraph was good up to 26,000. From there, it was a one-way street. You could receive, but you couldn't send.

Here was a problem for Boeing acoustical and electrical engineers. Years ago, in the early days of air transport, Boeing led the development of the first plane-to-ground short-wave radio-telephone system. Now, with Boeing Flying Fortresses operating six, seven and more miles above the earth, it was necessary to provide two-way radio voice communication at these levels.

This the Boeing engineers did.

Working nights and days, working in the laboratory and "upstairs" in the stratosphere, working against time and cold and rarefied air, Boeing engineers have gradually pushed the communications ceiling higher and higher.

Today the men in the Fortresses, cruising over the roof of the world, know that their communications system is the best available. . . . Today the work of Boeing engineers is helping our Air Forces to speak terse, well-chosen words for democracy.

The advance of radio communication . . . both for peace and for war . . . is only one of the many different projects which form a constant part of the Boeing engineering schedules at Seattle and in the Middle West and Canada.

DESIGNERS OF THE FLYING FORTRESS • THE STRATOLINER • PAN AMERICAN CLIPPERS

BOEING

*THE TERMS "FLYING FORTRESS" AND "STRATOLINER" ARE REGISTERED BOEING TRADE-MARKS

15 Companies Turning Out Trainers, Chamber Reports

Some 15 aircraft companies are now producing Army and Navy training planes and have met all schedules for greatly expanded programs, the Aeronautical Chamber of Commerce reports in a special survey.

The industry is providing trainers without curtailing its record output of combat planes, the Chamber declared. Majority of the lighter planes are used directly by the Army and Navy, and the others in the Civilian Pilot Training program.

"Official records show that during a seven-months period this year, 45% more hours of training were flown than in 10 years prior to 1940," the announcement stated.

"Manufacturers of trainers were among the first called upon to meet the demand for greatly expanded wartime production. How the trainer builders have met the demand, in terms of numbers of planes, is a military secret, but it is permissible to say that they have met all schedules. They also have revised production designs to substitute large percentages of non-critical materials in their product in order to free scarce aluminum, magnesium and other war-vital metals."

The survey lists the following leading planes:

Aerona L-3B, a light primary trainer, is used by the Army for training glider pilots. It is powered



Aerona L-3B

by either a Franklin, Lycoming or Continental 65 hp engine.

Boeing PT-17 is a primary bi-plane produced for the Army in large numbers, and also for the Navy under the designation of the N2S-4. The Army model is powered by a 220 hp Continental engine. Boeing is also building the AT-15, a twin-engine advanced trainer.

Beech AT-10, with two 280 hp Lycoming engines, is an advanced trainer of wood monocoque except for engine nacelles and cowling; pilot's compartment, landing gear and engine support structure. Even the gas tanks are of plywood with synthetic rubber lining. The Beech AT-11 is an all-metal advanced trainer for bomber crews. It has two 450 hp Pratt & Whitney Wasp engines. The Beech AT-7 is a similar model for long range navigational training.

Cessna AT-17 Bobcat with two 225 hp Jacobs engines is for multi-engine crews, a three-place model being used in Canada's pilot program as well as at Army training centers in the U. S.

Curtiss AT-9, with two 280 hp Lycoming engines, is an all-metal transitional trainer duplicating for the pilot the flight characteristics he will find in the operation of a multi-engine bomber. It is primarily intended for flight instruction, although it is equipped for blind flying and radio operation for training navigators.

Fairchild PT-19, a primary trainer built largely of Duralumin plastic plywood, was designed so as to require a minimum of static materials. It is powered by a 175 hp Ranger engine. Fairchild also has new trainers, the PT-23 primary trainer and the Fairchild AT-13 two-engine advanced Army trainer.

Fleetwings is building the BT-12, a single-engine military basic trainer of stainless steel.

Howard Aircraft is at work on a Navy trainer, the NH-1.

North American AT-6, an advanced combat trainer, is a low-wing, two-place all metal monoplane powered by a Pratt & Whitney 650 hp Wasp engine. It is used by the Army as an advanced trainer for pursuit pilots, by the Navy as the SNJ, by a number of Latin American countries for both training and patrol duty, and by the United Nations forces. The British call it the Harvard.

Piper LB-4, with a 65 hp Continental engine, is a tandem primary trainer used by both the Army and the Navy. It is equipped with a swivel seat to permit observer to about-face and work as radio operator.

Ryan PT-22 with a 160 hp Kinner is a primary trainer with flaps, brakes, trimming tabs, steerable tail wheel and other modern accessories. It is being mass flown from the factory to many civilian flying schools with which the Army Air Forces has contracted for the training of aviation cadets. The Ryan PT-21 has a 132 hp Kinner engine.

Taylorcraft L2-B, with a 65 hp Continental engine, is a light primary Army trainer. The cabin roof is transparent to give the pilot and observer clear vision above. The



North American AT-6



Beech AT-10



Cessna AT-17



Curtiss AT-9



Piper LB-4

trainer is used at artillery schools in training men to spot enemy positions, directing artillery fire and performing liaison missions.

Vultee BT-15 Valiant transitional Army trainer with a 440 hp Wright Whirlwind engine is used to train Army pilots after they have mastered the basic principles of flight in a primary trainer and before they learn to fly the advanced trainers intended to prepare them

(Turn to page 44)

Lockheed-Vega Start National Radio Program

"Ceiling Unlimited," the first regular national radio program sponsored by an aircraft manufacturer, was started Nov. 9 by Lockheed Aircraft Corp. and Vega Aircraft Corp., Burbank, Cal.

Written and directed by Orson Welles, the program is planned for a 15 minute period on the air, over 56 stations of CBS at 7:15 EWT and 8:15, PWT. Besides the regular domestic broadcasts, CBS will short-wave "Ceiling Unlimited" to the AEF, bringing to 17 the number of this system's commercial shows which are passed along to the armed forces overseas.

According to announcement, program is "planned to inform the American people as to the part that American aviation is playing today and will play in the future . . . (it) will deal with the personalities, planes and dramatic events of the industry."

Harold R. Isaacs, CBS research staff, will direct a research office in Washington, and a second man will gather material on West Coast aircraft industries. Some information will come from the special service of the United Press. From these sources, ample, well documented material is expected to be available as background for the series of dramatizations.

Biddle Advises on Employment of Aliens

Manufacturers who mistakenly employ ineligible aliens on aeronautical or confidential war contracts are not liable to prosecution if the employment was given in good faith, Attorney General Francis Biddle advised the Secretaries of War and Navy on Oct. 22.

It was explained that the restrictions on employing that type of applicant on the contracts indicated had resulted in increasing the manpower shortage in a number of plants, simply because even many native-born citizens had been unable to produce birth certificates or other documentary evidence of citizenship.

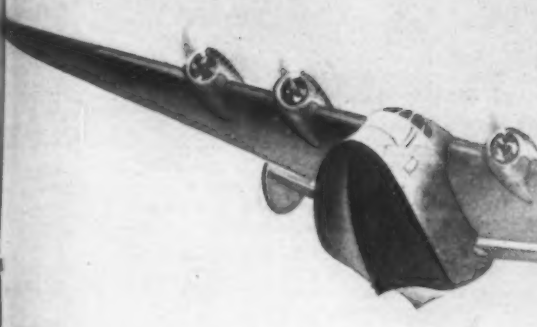
Plants which have contracts classified as "secret, confidential or restricted," may employ aliens "only upon the approval of the Secretary of War or the Secretary of the Navy." It is understood machinery for handling these requests has been established in the War Dept.

The Attorney General's ruling makes clear that no employer is liable to prosecution if he has accepted in good faith as proof of an applicant's citizenship any of the following: (1) a certificate of naturalization; a certificate of citizenship; a birth certificate or other official record of birth; (2) an honorable discharge from the United States armed forces, or (3) a properly executed "Declaration of Citizenship" as prescribed in the War and Navy Department joint memorandum of August 22, 1942.



AVIATION'S FUTURE

... DEPENDS ON MEN WHO
MAKE AVIATION THEIR FUTURE



TEMPORARILY there is room for many thousands of single-phase workers in the production of great bombers for victory and huge transports for the peace to follow. But, the men of PERMANENT value to the aircraft industry are those who have obtained thorough training to fit themselves for responsible supervisory positions. Curtiss-Wright Technical Institute has for many years taken pride in training QUALITY graduates for QUANTITY production—men who have dedicated their lives to aviation.



CURTISS  **WRIGHT**
TECHNICAL **INSTITUTE**

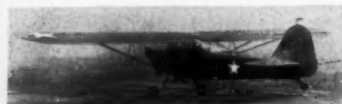
GRAND CENTRAL AIR TERMINAL
GLENDALE (LOS ANGELES) CALIF.

CONTRACTORS TO THE
U. S. Army Air Corps



CURTISS-WRIGHT TECHNICAL INSTITUTE

THIS TOWER OVERLOOKS AVIATION'S MOST DISTINGUISHED SCHOOL OF AERONAUTICS • FOUNDED IN 1929



Taylorcraft L-2B



Waco UPF-7



Ryan PT-22



Fairchild PT-19



Vultee BT-15



Boeing PT-17

Trainers

(Continued from page 42)

for immediate combat work. It is a two-place low-wing monoplane. For instrument flying it is equipped with blind flying hoods and two-way radio for ground contact. The Navy Vultee Valiant is a similar type. Vultee is also building the AT-19, a single engine advanced trainer.

Waco UPF-7, biplane primary trainer, is being widely used in the Civilian Pilot Training Program activities and some are in use by the Army under the designation of the YPT-14. They are powered by Continental engines.

Incorporations

Delaware—Horace Keane Aero (1903) Planes, Inc. Engines, motors. Capital, \$450,000. Principal office, the Corporation Service Co. Incorporators: S. L. Mackey, J. Slaughter and H. Kennedy, Wilmington.

Massachusetts—Simsbury Flying Service, Inc., Simsbury. Oct. 8, 1942. 500 shares at \$100 each. Capital, \$25,000. Incorporators: Jerome E. Respass and Albert A. Lapointe, both of West Hartford, and Robert L. Gilbert, Simsbury.

North Carolina—Trans-Air Corp., Morganton. N. C. Aircraft Manufacture. Capital stock, \$500,000 and subscribed stock \$20,500. Chartered by: John C. Bernhardt and George H. Bernhardt, Lenoir, and T. Henry Wilson, Drexel.

AWPC Describes Planes

(The Aircraft War Production Council has issued the following list of its members' "principal production planes and previously built military aircraft still in service.")

CONSOLIDATED AIRCRAFT CORP.

B-24 (Liberator) 4-engine long-range heavy bomber.
C-87 (Cargo version of B-24) 4-engine cargo plane.
PB2Y-3 (Coronado) 4-engine Navy Patrol Bomber, also built with modifications for cargo carrying purposes.

DOUGLAS AIRCRAFT CO.

C-47 (Sky Train) Twin engine transport and cargo; military version of DC-3 airliner.
C-53 (Sky Trooper) Similar to C-47, designed primarily for light cargo.
C-54 (Sky Master) 4-engine heavy cargo plane.
DC-5 Twin engine transport and cargo.
TBD (Devastator) Single engine torpedo bomber.
SBD (Dauntless) Single engine dive bomber.
A-24 (Banshee) Single engine dive bomber; Army version of Navy SBD.
A-20 (Havoc) AAF Twin engine medium bomber.
DB-7 (Boston) RAF Twin engine medium bomber, similar to A-20. (Use of terms Boston and Havoc have been used for both planes, but AAF and RAF recently agreed to follow the above names.)
B-19 4-engine heavy bomber. World's largest land plane. Experimental.
B-18 (Bolo) Twin engine reconnaissance bomber. Service derivation of DC-3 airliner.
B-23 Recent development of B-18.
B-17 (Flying Fortress) 4-engine heavy bomber, built under license from Boeing.
B-24 (Liberator) 4-engine heavy bomber, built under license from Consolidated.

LOCKHEED AIRCRAFT CORP.

AT-18, A-28, A-29 (Hudson) Twin engine medium bomber and reconnaissance plane. Familiarly known to British as "Old Boomerang."
18 (Firm model number) (Lodestar) Twin engine transport.
C-56, C-57, C-59, C-60 Military versions of Lodestar. Cargo.
P-38 (Lightning) Twin engine, high speed interceptor fighter.
C-69 (Constellation) Large 4-engine transport and cargo plane; still under construction.

NORTH AMERICAN AVIATION, INC.

P-51 (Mustang) Single engine, high speed fighter.
B-25 (Mitchell) Twin engine medium bomber. (First plane to raid Tokyo.)
AT-6A (Navy SNJ) (Harvard) Single engine advance trainer.
BT-14 Single engine basic trainer.
BT-9 Single engine basic trainer.
BC-1 Single engine basic combat trainer.
O-47 Single engine 3-place observation plane.

NORTHROP AIRCRAFT, INC.

N-3PB Single engine patrol bomber seaplane.
Flying Wing Tailless experimental plane—twin engine.
A-31 (RAF V-72) (Vengeance) Single engine dive bomber built under license from Vultee.

RYAN AERONAUTICAL CO.

YO-51 (Dragonfly) Single engine Army cooperation plane.
PT-21, PT-22 (Navy NR-1) Single engine trainer.
PT-25 Single engine plywood trainer.
STM Single engine trainer of PT-22 class, British version.
SC Single engine sport plane, 3-place; widely used by Civilian Air Patrol.

VEGA AIRCRAFT CORP.

B-34 (Ventura) Twin engine medium bomber and reconnaissance plane; modified version of Lockheed Hudson.
B-17 (Flying Fortress) 4-engine heavy bomber, built under license from Boeing.

VULTEE AIRCRAFT, INC.

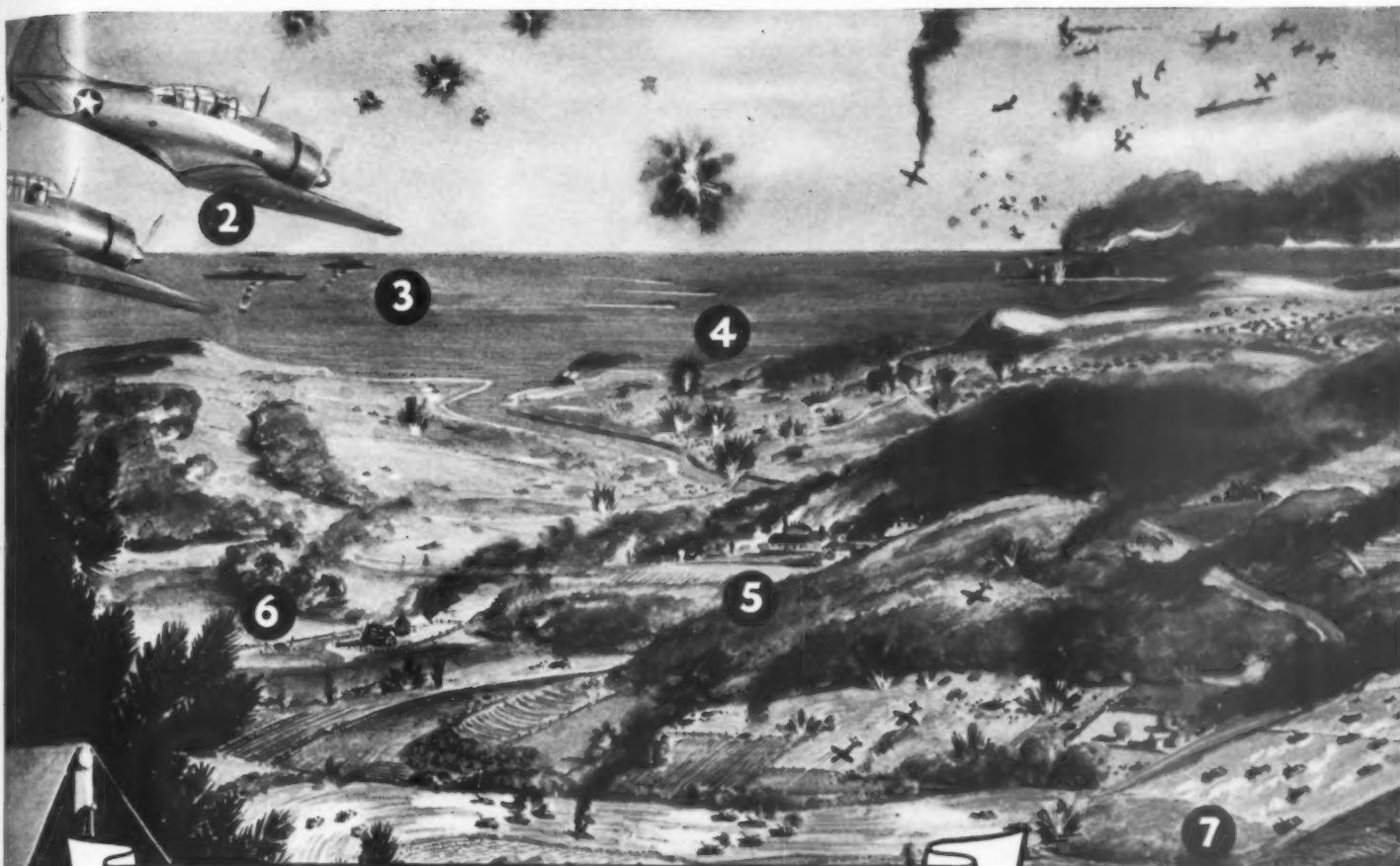
P-66 (Vanguard) Single engine fighter.
BT-13A, BT-15 (Navy SNV-1) (Valiant) Single engine basic trainer.
A-31 (RAF V-72) (Vengeance) Single engine dive bomber.
O-49 (Vigilant) Single engine Army liaison plane.
V-11, V-12 Single engine transport planes, converted by South American countries and now used as attack bombers.

Strip Gasket Material

Latest development announced by Felt Products Mfg. Co., 1530 Carroll Ave., Chicago, is the Fel-Pro Thiokol strip gasket material. Manufactured by special-method application of Thiokol to a processed felt base, the resulting product is claimed to be weather resistant and appropriately spongy. Already this material has been produced in lengths over six feet, and extensive laboratory as well as service tests have been completed.

Spark Plugs Cost Less

Because of manufacturing economies and increased demand for both governmental and civilian use, Champion Spark Plug Co., Toledo, O., announces "substantial" reductions in the price of ceramic insulated aircraft spark plugs. On the civilian plane plug type reductions average 20%. Shielded and unshielded 18mm., 14mm. and the C-10-S type of plug are included in this category.



COMMUNICATIONS

...directing arm of combat

This battle drawing was prepared with the aid of Army and Navy authorities

IN modern battle, our fighting units may be many miles apart. Yet every unit, every movement, is closely knit into the whole scheme of combat—through communications.

Today much of this equipment is made by Western Electric, for 60 years manufacturer for the Bell System.

Here are some examples of communications in action.

1 Field H.Q. guides the action through field telephones, teletypewriters, switchboards, wire, cable, radio. Back of it is G. H. Q., directing the larger strategy... also through electrical communications. The Signal Corps supplies and maintains all of this equipment.

2 Air commander radios his squadron to bomb enemy beyond river.

3 On these transports, the command rings out over battle announcing system, "Away landing force!"

4 Swift PT boats get orders flashed

by radio to torpedo enemy cruiser.

5 From observation post goes the telephone message to artillery, "Last of enemy tanks about to withdraw across bridge..."

6 Artillery officer telephones in reply, "Battery will lay a 5 minute concentration on bridge."

7 Tanks, followed by troops in personnel carriers, speed toward right on a wide end-run to flank the enemy. They get their orders and keep in contact—by radio.

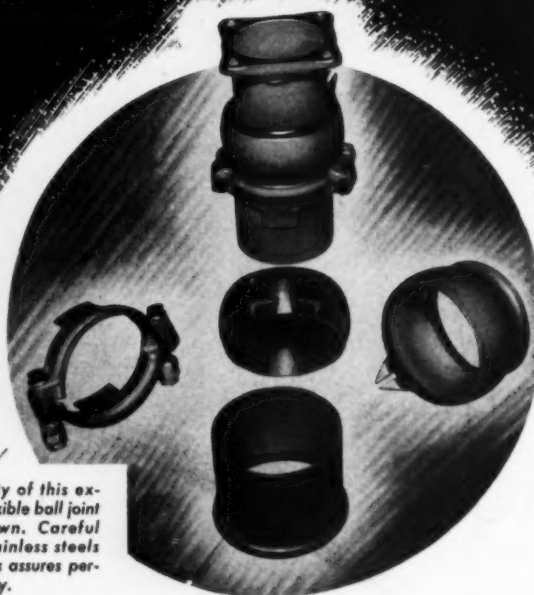


Western Electric
ARSENAL OF COMMUNICATIONS



ANOTHER

contribution to BETTER EXHAUST SYSTEMS ★ ★ ★ The Aircraft Components, Inc. SEAMON'S BALL JOINT



The simplicity of this exhaust system flexible ball joint is clearly shown. Careful selection of stainless steels and other alloys assures permanent flexibility.

Large scale production of the Seamon's Ball Joint for exhaust manifold systems, under patent license, is now under way in our main plant. Developed expressly as a superior method of providing permanent flexibility, the Seamon's Joint is light weight, free from maintenance problems and thoroughly proven in over two years of actual service on high production, twin-engine bombers.



AIRCRAFT COMPONENTS, Inc.

Address all inquiries to our main plant
VAN NUYS, CALIFORNIA

Specialist designers and manufacturers of manifold exhaust systems, including cowl wells, mufflers, air scoops, supercharger housings, for leading prime contractors... Also other stainless steel fabrications for engine installations.

"SPECIALISTS—FIRE WALL FORWARD"

Manufacturing Personnel



Shafer

Overbeke

Houghton

Rentschler

George S. Thompson, for the past five years a supervisor on the engineering staff at the Grumman Aircraft Engineering Corp., Bethpage, L. I., N. Y., has become chief designer at Fleetwings, Inc., Bristol, Pa. Also added to Fleetwings' engineering department are: E. E. Miller, who has been appointed chief project engineer, and J. L. McClane, formerly vice president and general manager at Republic Aviation Corp., Farmingdale, L. I., N. Y.

E. P. Barry has been appointed coordinator of plants, Chicago Pneumatic Tool Co. He will supervise machine equipment, tool designing and production for the firm's four plants, according to press reports. Barry was formerly with the Glenn L. Martin Co., Baltimore, Md.

Frank J. Carter succeeds R. S. Pope as personnel manager at Goodyear Aircraft Corp., Akron, O. Carter has since 1938 been general superintendent of the Brazilian plant at Sao Paulo of Goodyear Tire and Rubber Co. Pope is now director of personnel for Goodyear Tire and Rubber at Akron.

Herbert O. Nelson, formerly with Hill and Knowlton, New York, N. Y. and Cleveland, O., has been appointed director of public relations for Interstate Aircraft and Engineering Corp., El Segundo, Cal.

A. E. Shelton, formerly works manager, has been promoted to the newly created position of division manager at the Stinson Division of Vultee Aircraft, Inc.

J. R. Allen, until recently design engineer in the confidential design room of Vultee Aircraft, Inc., Vultee Field, Cal., has been appointed administrative engineer at Simmonds Aerocessories, Inc., New York, N. Y.

T. E. Tillinghast has been elected president of United Aircraft Service Corp., subsidiary of United Aircraft Corp., East Hartford, Conn.; succeeding Eugene E. Wilson, resigned. Tillinghast continues as sales manager of United's Pratt and Whitney Aircraft Division. Announcement has also been made of the naming of Walter B. Mather to succeed Robert Etherington in charge of insurance at United's East Hartford office. Etherington has accepted a commission as lieutenant, jg, U. S. Navy.

Clayman C. Shafer has been elected president of the Los Angeles chapter of the recently formed Society of Aircraft Industrial Engineers. He is senior industrial engineer of the methods and controls department at the southern California plant of Vultee Aircraft, Inc., Vultee Field, Cal.

John Berry, Jr. has been promoted from assistant treasurer to the newly created position of comptroller at Bell Aircraft Corp., Buffalo, N. Y.

George Rentschler and William H. Houghton were elected directors of Bendix Aviation Corp., at a special meeting of the Board of Directors held in New York City Oct. 7. Rentschler is president of the General Machinery Corp., Hamilton, O. Houghton has been comptroller of Bendix since 1929.

John W. Overbeke has been appointed chief engineer of Simmonds Aerocessories, Inc., New York, N. Y. He was formerly design engineer in charge of hydraulics at the Glenn L. Martin Co., Baltimore, Md.

Donald W. Fairbairn heads a new sales district for the National Sales and Service division of the B. F. Goodrich Co., Akron, O., which has been established in the Pacific coast area, excepting Seattle. Headquarters will be at Los Angeles. William R. Edwards, a former salesman, succeeds Fairbairn in work on rubber tracks for military vehicles. Other changes at Goodrich: W. B. Collier was named sales engineer on fuel cells; H. V. Dwight, formerly technical representative in Washington, is sales engineer on rubber tracks.

Frederick G. Dawson, general manager, and Leonard C. Mallett, assistant general manager, of the Missouri plant of United Aircraft Corp., East Hartford, Conn., were elected to the board of directors, succeeding F. W. Jackson and Walter F. Pease, resigned. Frank C. Redfield succeeds George Knaus, resigned, as assistant treasurer and assistant secretary, Missouri plant. Clifford E. Burt was appointed auditor.

(Turn to page 54)

The Eagle Strikes



The American Eagle, when aroused, is a sudden whirl of fury as it strikes with killer claws.

The American people and their government are fully, fiercely aroused today. They are fighting this toughest of all wars with every nerve and sinew . . . ready to wreak destruction on the enemy.

The Army Air Transport Command, The Naval Air Transport Service, and The United States Maritime Commission have organized

and are directing the most gigantic transportation job in world history. Due to their combined efforts, the greatest fleets of aircraft and ocean-going vessels ever assembled are now operating to all corners of the globe—on a scale that defies imagination.

American Export Airlines and American Export Lines, with giant four-engined flying boats and new fast cargo ships, are doing their bit in this gigantic transportation effort.

American Export *Lines Airlines*

25 BROADWAY, NEW YORK

REPLACING RIVETS IN A WING TIP

DO THIS JOB
Easily WITH
CHERRY
BLIND RIVETS

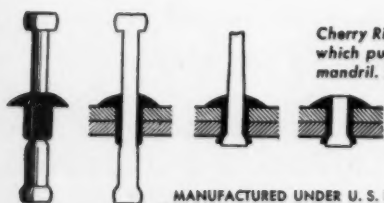


PHOTO COURTESY ANDERSON AIRPLANE SCHOOL

Drill out the old rivet, insert a Cherry Rivet, head it with a special gun from one side only (no bucking bar is needed), trim the stem flush and the job is finished. The positive mechanical action of Cherry Rivets gives high shear and fatigue values to the finished work.

Millions of Cherry Rivets are being used by plane manufacturers to save time and get better results in the blind or hard-to-get-at spots in new plane construction. Field service and repair men are likewise depending upon Cherry Rivets to speed their work.

PRICE REDUCED—The ever increasing use of Cherry Rivets has resulted in a price reduction through improved mass production. It is now practical to use them in many places where it was formerly considered inadvisable from a cost standpoint. The complete story on Cherry Rivets and their application will be furnished on request.



Cherry Rivets are applied with a special gun which pushes on rivet and pulls on stem or mandril. Diagram shows how mandril heads rivet, expands shank and permanently plugs rivet. Mandril is trimmed flush with rivet head.

MANUFACTURED UNDER U. S. PAT. NO. 2,183,543 AND OTHER PATS. PEND.

Cherry Rivet

Company
LOS ANGELES, CALIFORNIA

Two-Thirds of GM Plants Engaged in Aviation Production

Of 32 manufacturing divisions, two-thirds are engaged in aircraft production, General Motors Corp. reveals in a recent summary of its aviation activities.

More than half of war contracts in its 104 plants constitute aviation equipment for the United Nations, says GM. Current rate of production is more than \$7,000,000 a day, report continues, disclosing that Allison was the first division of GM to start aviation production, with a contract for engines in 1939.

Other divisions and their assignments in aircraft production, are summarized in part: Buick and Chevrolet make Pratt and Whitney radial, air-cooled engines; Eastern Aircraft division, consisting of five converted automobile plants, is getting into production on the Grumman "Wildcat" and "Avenger" for the Navy; Fisher Body makes air-frame assemblies for the North American B-25 bomber, as well as parts and instruments for the Flying Fortress.

At the Aeroproducts division, a new type of variable pitch propeller is being made. Frigidaire makes propellers and aircraft machine guns. Besides machine guns, the AC Spark Plug division is now making a new type of aircraft spark plug, and also special bearings. Delco Products makes motors and landing gear, and Harrison Radiator makes parachute flares.

Physically Handicapped Persons to be Used, Says Consolidated

Because of "increased production schedules . . . (and) increased demands for manpower," Consolidated Aircraft Corp., San Diego, Cal., will shortly begin hiring people with physical handicaps, according to recent announcement.

Company is evaluating each job, and analyzing what "physical strength, aptitude and dexterity are needed to fulfil it effectively." Object, it says, "is to utilize every available worker . . ."

Officials at Consolidated visualize the working of the new system as placing a person with one arm in work that requires only one arm; assigning a blind person work that needs only a sense of touch; those with one or both legs missing would do all work seated, etc.

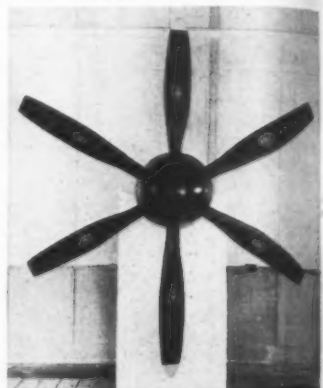
Torque Wrenches

Eight models ranging in size from instrument wrenches with only a few inch pounds capacity, to two-handed wrenches of 7200 inch pound capacity make up a line of torque wrenches announced by P. A. Sturtevant Co. of Addison, Ill. All are of the flat, tapered beam type with mixed end and top scales, and are guaranteed by the manufacturer to retain permanent accuracy.

First 6-Bladed Dual Rotation Prop Developed

Development of a six-bladed dual rotation airplane propeller, said to be the first in the world, has been announced by the Propeller Division of Curtiss-Wright Corp., New York City.

This propeller consists of two three-bladed propellers mounted one behind the other on coaxial shafts so that three blades rotate in one direction and the other three in the opposite direction. An im-



portant advantage claimed is that "torque . . . of the single rotation propeller upon the airplane is eliminated."

Designed primarily to increase the efficiency of high altitude airplanes with 2,000-hp. engines, the new propeller is believed to be particularly suitable for "those (engines) in which propeller diameter must be restricted." Company states several of the new propellers are being delivered to the U. S. AAF for installation on fighter planes.

Wright's engineers claim the propeller "will add approximately five per cent to the propeller efficiency of planes having speeds of more than 400 miles per hour."

Controls for this type propeller are said to be similar to those on "other constant speed and full feathering types now manufactured by the company for the high-powered fighting planes and bombers of the United Nations."

Entire Line Available

In the interest of time saving, Boots Aircraft Nut Corp., New Canaan, Conn., can now supply, upon order, their entire line of self-locking anchor nuts with dimpled rivet holes already provided. The dimpled holes, for use with 78° and 100° countersunk rivets, are an addition to the present line of plain base rivet holes.

WESTINGHOUSE ELECTRIC AND MANUFACTURING Co., East Pittsburgh, Pa., reports that among Westinghouse plants receiving the Army-Navy Production award was one in the Pittsburgh area making aircraft parts.



Day Nursery: Curtiss-Wright Corp. and the Amherst branch of Bundles for America Inc. at Buffalo, N. Y., have established this eight-room day nursery to accommodate children whose mothers are employed in the Curtiss-Wright plant and in other Buffalo war industries. The nursery accommodates 50 children from one to six years of age. Each child is vaccinated and inoculated before entering the nursery, is examined daily by a registered nurse, receives a warm lunch from the Curtiss-Wright plant cafeteria and takes an afternoon nap.



Speedy Construction: Photo shows mobile wooden platforms used in constructing a new "warspeed" plant of Wright Aeronautical Corp. somewhere in New Jersey. Concrete was poured atop the platforms and into wooden forms to shape supporting columns all at the same time. After a few days of drying, the forms were pulled forward, leaving a section of roof supported on columns. The plant, which was built in record time, is now in operation, producing engines.

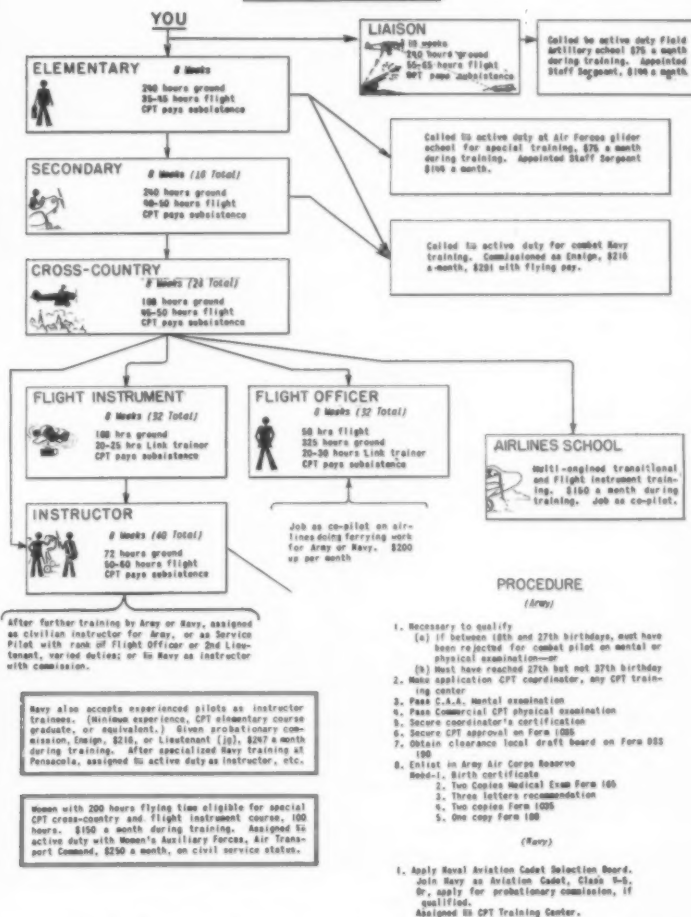


Mexican Plywood Trainer: Photo shows the new "Teziutlan" all-plywood trainer, now in mass production in a Mexican government factory. Designed by Antonia Sea and built entirely of non-strategic Mexican material, the ship will be the standard military primary trainer. Powered by a Lycoming 125-hp. aircooled engine, the "Teziutlan" is said to take off fully loaded at 7,400 ft. above sea level with a run of 160 ft. It has a seven-hour range.

MANUFACTURING

CAA-CPT PILOT TRAINING FOR ARMY AND NAVY AIR FORCES

"GET 'EM TRAINED!"



The above chart was released by the Civil Aeronautics Administration late in October, and is subject to change.

2 Jacks Introduced by Whiting Corp.

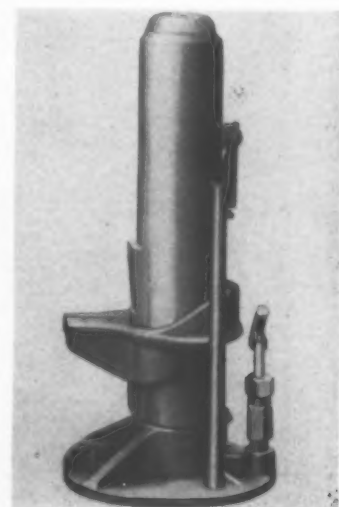
Whiting Corporation's Aviation Division, Harvey, Ill., announces the MHW-17, 17-ton Wing Jack, and MHA-15 Axle Jack. The MHW-17 is a tripod type, two-stage, hydraulic Jack for use in landing gear checks, tire and wheel changes, etc.

Collapsible for shipment, it is designed to ample proportion for use with several aircraft types. Retractable casters and towing hitch ball provide portability. Two sets of pumps are provided: one quick acting for raising ram to jack point; the other for lifting the load. Hand wheel safety nuts provide mechanical insurance against hydraulic failure.

The MHA-15 Axle Jack is an adjustable, step-type unit for long heavy duty service. Lifting step pad is adjustable to two positions 9½" and 13½" above floor and permanent stops prevent removal or loss of pad. Handle for single action hydraulic pump may be operated from either side and when not in use fits into socket in base.

MHW-10, 10-ton version of Wing Jack, and MHA-5, 5-ton Axle Jack, are also available.

NORTHROP AIRCRAFT, Inc., Hawthorne, Cal., reports it has obtained a \$17,000,000 credit from a syndicate of banks for working capital purposes. The loan is said to be secured by assignments of the proceeds of the company's production contracts.



Whiting's Axle Jack

**A B-24 LIBERATOR
BLASTS ITS TARGET
TO BITS**



Consolidated fuels and lubricates its powerful bomber engines with

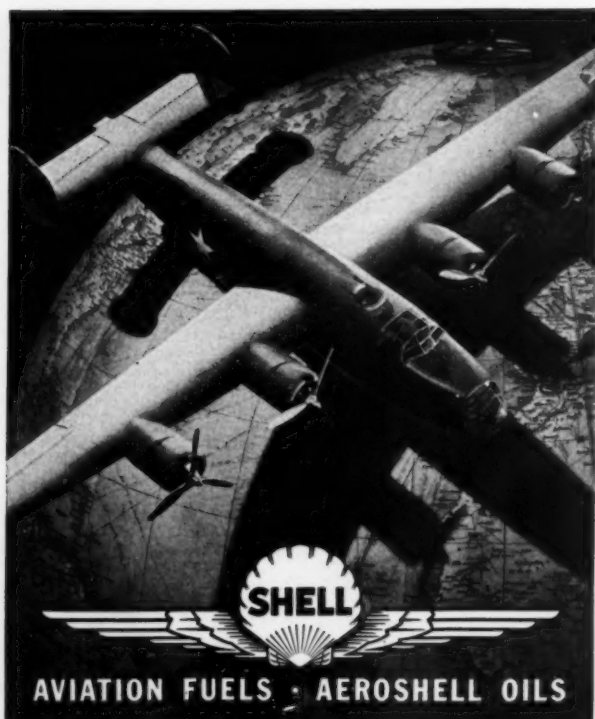
SHELL

The big B-24 comes roaring in over the target, the "ack-ack" rocking it with near-hits. But straight and true it flies... drops its "eggs" and heads for home.

There must be no gamble when these Liberators take the air. As they roll off the production lines, Consolidated* fuels and lubricates B-24's (Liberators), PBV's (Catalinas) and its famous PB2Y's (Coronados) with Shell Products. Preference for Shell Aviation Fuels and AeroShell Oils carries from coast to coast among many plane and engine manufacturers, aviation training schools, transport lines and airports.

That's the reason airport operators the country over have found Shell's fast-growing line of products profitable to handle.

*Originator of the Liberator... Catalina... Coronado.



Model of Liberator B-24 shown courtesy Consolidated Aircraft Corp.

Specialized Airport Design

(Continued from page 38)

could supply the advantages of assisted take-off and landing. The truck would have its own operator, connected to the airplane's crew by interphone to assure complete cooperation throughout the critical period of contact "make" or "break."

Only Temporary

Present necessary pressure and demand upon airline services deny opportunity for long-range planning, insist upon immediate solutions. Crutches though they may be, these expedients reflect the ability and ingenuity of the operators. However, they remain crutches, a satisfactory temporary support only valid until improvement of the basic limb permits reapplication of it. Along this line we are wondering how much thought is being given to the possibilities of supplanting today's "on-the-spot" gear.

In our minds, the retention of passenger ladders, baggage loading trucks, commissary wagons and the like in their present portable state is irreconcilable in the face of large aircraft developments. What are the chances of making the whole ground cycle of the aircraft operation and maintenance a straight flow, "in-one-door-and-out-the-other" proposition? Let's take an example.

The controlled landing at Washington would be accomplished, with gear retracted, upon our manned car which supports the aircraft on wing-contoured towers outboard of the fuselage. Deceleration is afforded the car by mechanical means and the operator, using switches in the track, and automatic limiting stops, positions the aircraft at elevated passenger and baggage ramps. Baggage unloading may be accomplished by belt or escalator means.

Unloading accomplished, the aircraft is moved straight ahead into the maintenance hangar where a service channel permits lowering of car and aircraft to a level accommodating engine service from low platforms or possibly even from the floor. Landing gear, as required on aircraft serving smaller intermediate ports lacking assisted landing and take-off facilities, may be serviced in the channel. Storage space along the channel walls offers great general utility.

Doors On End

This technique, if applicable, leads to the thought that possibly hangar doors ultimately should be on the hangar end rather than side. Our "production line" should then run the hangar length, starting with a wash room and ending with a final wipe down and polish. In between we would utilize a change-to-service technique throughout the hangar-length moving line.

The location of specializing, maintenance shops would be established, by our technique, along the hangar walls paralleling the line. Overhead cranes might or might not be required, depending upon the channel application. Portable servicing equipment would provide the tie-in between shops and line. Shop-location order should follow the logical sequence of change operations appropriate to the aircraft.

To continue our straight-flow principle, maintenance is followed by preparation for operation: charging of the carrier with supplies such as food, then loading of express and mail, baggage and finally passengers. All this, like our unloading and maintenance, would be accomplished by means of flexibly designed expandable airport installations, not crutches. It would not appear to be amiss to give some thought to two terminals, one incoming and one outgoing, to occupy spots at opposite ends of our line.

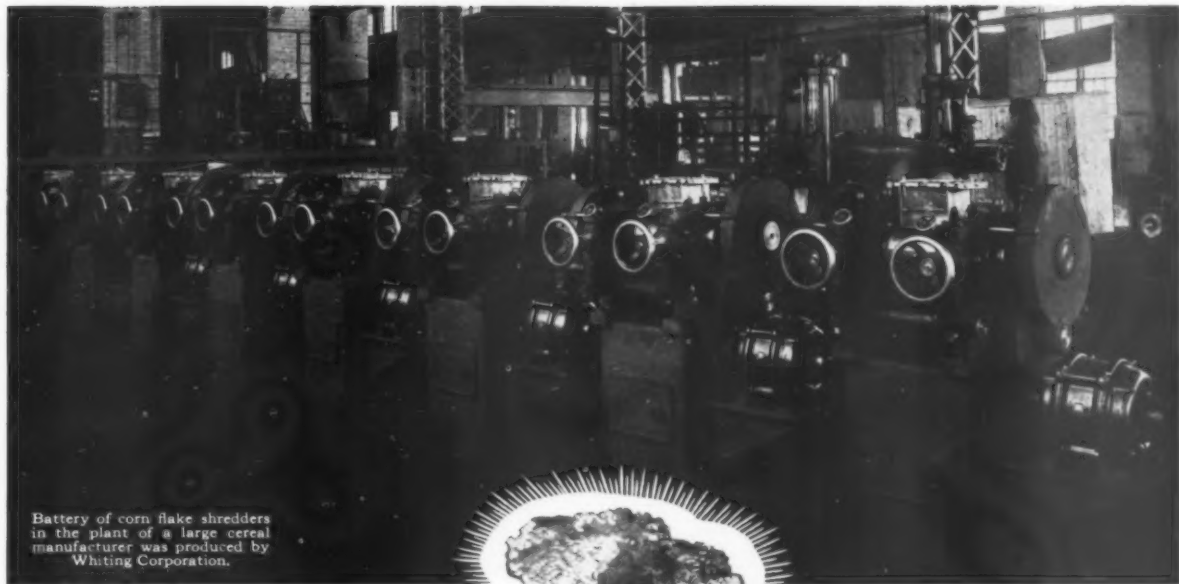
Retain Flexibility

It would be presumptuous to imply that all types of aircraft servicing would adapt themselves to the proposed technique. Therefore, we must plan to retain the flexibility of spotting for once-over-lightly service as opposed to the periodic cyclic phases of our continuous maintenance. A conventional hangar might be the answer or possibly better a development of the nose hangar.

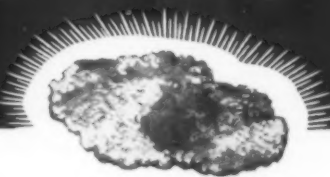
For large-scale fleet operation, the nose hangar running-length might be extreme if we operate on a wing tip to wing tip basis. Overlapping of wings to near-outboard nacelle stations would be entirely practical through the use of hydraulic jacks on our undercar and calibrated extension stops.

City Should Serve

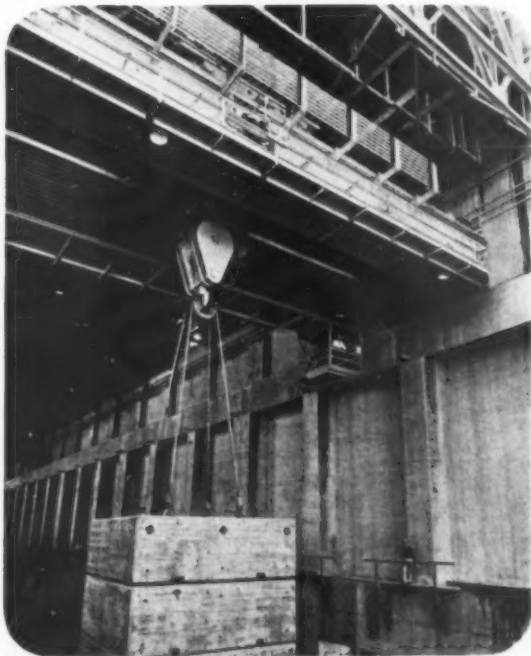
These ideas applicable to airport detail design are offered in view of our realization that the airport, accessories and appurtenances thereto must grow to match the air transport needs or else an unbalanced condition is the inevitable end. Certain basic considerations of airport design lend themselves to simple computation. But other points demand specialized guidance: active participation in thought and deed by airline engineers and maintenance handling equipment specialists with municipal sponsorship in the background. The role of the city should be one of service—a sincere attempt to offer the perfect in space, equipment and general conditions to the airline tenants, disarmed of the Renaissance restrictions of certain architectural concepts and building codes but, of course, consistent with safety and good construction practices and functional.



Battery of corn flake shredders in the plant of a large cereal manufacturer was produced by Whiting Corporation.



-to Shred a Corn Flake



This Traveling Crane—capacity 700,000 pounds—is a Whiting product.

-or LIFT 700,000 POUNDS

The production of special equipment for materials handling service . . . or specialized machines for unusual applications . . . has been the business of Whiting Corporation for nearly sixty years.

With hoists or steel converters . . . pulverizers or chemical evaporators . . . railroad equipment or shears that snip through heavy metal sheets . . . industry has been served by Whiting with standard equipment or with special machines and devices produced through Whiting's Collateral Engineering Service.

Today, an air-minded personnel makes this broad experience available to the aviation industry. An extensive Whiting line of matched aircraft maintenance and handling equipment is being produced . . . and the Whiting Collateral Engineering Service is collaborating on many of today's aviation problems.

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Detroit, Cincinnati, and St. Louis

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PLASTIC WAR PRODUCTION ASSOCIATION, 122 E. 42nd St., New York, N. Y., has been certified by W.P.B. "as a war production association." Purpose is to pool engineering, research and manufacturing facilities of members for the benefit of Government agencies placing war contracts. An important function will be to develop new applications of plastics to help metals conservation.



PARKS Graduates are Equipped for Steady Progress

Every Parks trained man has received preparation training that equips him to rise beyond his first job. Parks graduates are qualified to forge ahead — to take advantage of opportunities and to progress to positions of leadership and responsibilities.

Because Parks is an educational institution, Parks graduates receive much more than purely technical training. They are educated to develop their own capacities for original, independent thinking — they know the *how* as well as the *why* of what they do.

If you are interested in personnel who are equipped to make definite contributions to your industry, a letter to Oliver L. Parks, President, will bring you data on available graduates of Parks.

PARKS AIR COLLEGE, Inc.
East St. Louis, Illinois

Government Publications

A recent list of field and technical manuals, containing many separate publications of interest to aviation people, has been issued by the Superintendent of Documents, Government Printing Office, Washington, D. C. Any of the publications can be obtained from the Superintendent at that address, by sending check or money order in advance. Coupons with various unit values are also available for those who make frequent purchases.

Aviation and other subjects, with bibliographical information and price, are listed here, as compiled from the revised catalog of Sept. 1942; first, AAF Field Manuals. These consist of a series of pamphlets containing training and reference data and instructions relative to the tactics and technique involved in the employment of the arms and services of the Army.

W 1.33:1-30 Air Navigation. 1940. 43 pp. Illustrated. 15c.

W 1.33:1-50 Weather. 1942. 57 pp. Illustrated. 10c.

W 1.33:1-60 Review and Inspections. 1941. 11 pp. Illustrated. 10c.

W 1.33:4-117 Barrage, balloon, Operation of Materiel and Employment of Personnel. 1942. 100 pp. Illustrated. 15c.

W 1.33:5-20 Camouflage. 1940. 52 pp. Illustrated. 15c. Supersedes Engineer Field Manual, vol. 2, pt. 2, 1932, and Training Regulations 195-45.

W 1.33:21-5 Military Training. 1941. 77 pp. 15c. Supersedes Training Regulations 10-5.

W 1.33:21-6 List of Publications for Training, including Training Films and Film Strips. 1942. 187 pp. 25c. Supersedes Field Manual 21-6, Sept. 1, 1941.

W 1.33:21-25 Elementary Map and Aerial Photograph Reading. 1941. 100 pp. Illustrated. Map. 30c. Supersedes Basic Field Manual, vol. 1, Chapter 5, 1938.

W 1.33:21-26 Advanced Map and Aerial Photograph Reading. 1941. 190 pp. Illustrated. Plates. 20c. Supersedes Training Manual 2180-5.

W 1.33:21-50 Military Courtesy and Discipline. 1942. 44 pp. Illustrated. 10c. Supersedes Field Manual 21-50, Jan. 31, 1941, including C 1, Jan. 17, 1942.

W 1.33:21-100 Soldier's Handbook. 253 pp. Illustrated. 35c.

W 1.33:21-105 Engineer Soldier's Handbook. 1941. 90 pp. Illustrated. 20c.

W 1.33:21-150 Unarmed Defense for the American Soldier. 1942. 315 pp. Illustrated. 40c.

W 1.33:30-30 Military Intelligence, Identification of United States Government Aircraft. 1942. 151 pp. Illustrated. 25c. Supersedes Field Manual 30-30, Sept. 18, 1940, including C1, Jan. 1, 1941.

W 1.33:30-35 Military Intelligence, Identification of German Aircraft. 1942. 140 pp. Illustrated. 20c. Supersedes Field Manual 30-35, July 5, 1941.

W 1.33:30-38 Military Intelligence, Identification of Japanese Aircraft. 1942. 175 pp. Illustrated. 25c. Supersedes Field Manual 30-38, Mar. 10, 1941.

W 1.33:30-39 Military Intelligence, Identification of Italian Aircraft. 1941. 91 pp. Illustrated. 15c.

Secondly, Technical Manuals. These consist of a series of pamphlets supplementing the Field Manuals covering subjects, the separate treatment of which is considered essential to a fuller accomplishment of the training prescribed in the Field Manual series. The scope of this series includes pamphlets describing materiel and containing instructions for the operation, care, and handling thereof; guidebooks for instructors and specialists; material for extension courses; reference books, and the like.

W 1.35:1-205 Air Navigation. 1940. 296 pp. Illustrated. Plates. 40c.

W 1.35:1-208 Air Navigation Tables. 1942. 221 pp. 50c.

W 1.35:1-210 Elementary Flying. 1942. 145 pp. Illustrated. 25c.

W 1.35:1-219 Basic Photography. 1941. 342 pp. Illustrated. 35c. Supersedes Training Manual 2170-5.

W 1.35:1-220 Aerial Photography. 1941. 66 pp. Illustrated. 15c. Supersedes Training Manual 2170-6.

W 1.35:1-230 Weather Manual for Pilots. 1940. 293 pp. Illustrated. Plates. 40c.

W 1.35:1-231 Elementary Weather for Pilot Trainees. 1942. 23 pp. Illustrated. Plates. 10c.

W 1.35:1-232 Basic Weather for Pilot Trainees. 1942. 204 pp. Illustrated. Chart. 35c.

W 1.35:1-233 Elementary Physics for Pilot Trainees. 1942. 116 pp. Illustrated. 20c.

W 1.35:1-235 Weather Observer. 1942. 674 pp. \$1.00.

W 1.35:1-240 Arctic Manual. 1942. 74 pp. 15c. Supersedes Arctic Manual, Vols. 1 and 2, Nov. 6, 1940.

W 1.35:1-305 Theory of Ballooning. 1940. 12 pp. 10c. Supersedes Training Regulations 440-300.

W 1.35:1-315 Hydrogen. 1940. 24 pp. Plates. 10c. Supersedes Technical Regulations 1170-30.

W 1.35:1-320 Airship Aerodynamics. 1941. 66 pp. Illustrated. 15c. Supersedes Technical Regulations 1170-290.

W 1.35:1-325 Aerostatics. 1940. 92 pp. Illustrated. 15c. Supersedes Technical Regulations 1170-295.

W 1.35:1-400 Theory of Flight. 1941. 182 pp. Illustrated. 30c. Supersedes Technical Regulations 1170-205.

W 1.35:1-405 Aircraft Engines. 1941. 81 pp. Illustrated. 15c. Supersedes Technical Manual 1-405, Nov. 4, 1940.

W 1.35:1-406 Aircraft Electrical Systems. 25c.

W 1.35:1-407 Aircraft Induction, Fuel and Oil Systems. 1941. 96 pp. Illustrated. 20c. Supersedes Technical Manual 1-407, Sept. 23, 1940.

W 1.35:1-408 Aircraft Engine Operation and Test. 1942. 64 pp. Illustrated. 15c. Supersedes Technical Manual 1-408, Sept. 16, 1940.

W 1.35:1-410 Airplane Structures. 1941. 132 pp. Illustrated. 20c. Supersedes Technical Manual 1-410, Nov. 30, 1940.

W 1.35:1-411 Airplane Hydraulic Systems and Miscellaneous Equipment. 1941. 106 pp. Illustrated. 15c. Supersedes Technical Manual 1-411, Oct. 29, 1940.

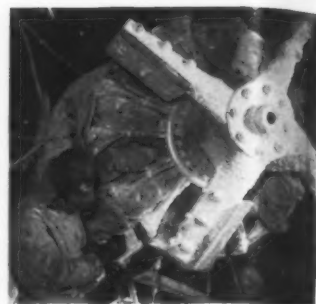
W 1.35:1-412 Aircraft Propellers. 1940. 107 pp. Illustrated. Flexible cloth. 25c.

W 1.35:1-413 Aircraft Instruments. 1942. 234 pp. Illustrated. 30c.

W 1.35:1-415 Airplane Inspection Guide. 1942. 104 pp. 15c. Supersedes Technical Manual 1-415, Mar. 24, 1941.

W 1.35:1-420 Air Corps: Lathes. 1940. 94 pp. Illustrated. 15c.

W 1.35:1-424 Aircraft Hardware and Materials. 1942. 80 pp. Illustrated. 15c.



Starting Test: A Wright Aeronautical Corp. engineer is shown recording technical observations before running a cold weather starting test on an ice-covered Wright Cyclone during a series of experiments with the operations of such engines at sub-zero temperatures.

W 1.35:1-430 Welding. 1942. 180 pp. Illustrated. 30c. Supersedes Technical Manual 1-430, Feb. 20, 1941.

W 1.35:1-435 Aircraft Sheet Metal Work. 1941. 147 pp. Illustrated. 25c.

W 1.35:1-440 Parachutes, Aircraft Fabrics, and Clothing. 1941. 119 pp. Illustrated. 15c.

W 1.35:1-445 Instrument Flying Training. 1942. 144 pp. Illustrated. 20c. Supersedes Technical Manual 1-445, Sept. 7, 1940.

W 1.35:1-455 Electrical Fundamentals. 1941. 155 pp. Illustrated. 25c.

W 1.35:1-460 Radiotelephone Procedure. Air Corps. 1942. 69 pp. Illustrated. 15c. Supersedes Technical Manual 1-460, Mar. 21, 1941.

W 1.35:1-470 Aircraft Radio Shop Practice. 1942. 124 pp. Illustrated. 20c.

W 1.35:1-705 Physiological Aspects of Flying and Maintenance of Physical Fitness. 1941. 127 pp. Illustrated. 25c.

W 1.35:1-900 Mathematics for Pilot Trainees. 1942. 64 pp. Illustrated. 10c.

W 1.35:3-240 Meteorology. 1942. 51 pp. Illustrated. 10c. Supersedes Technical Manual 3-240, Aug. 6, 1940.

W 1.35:8-300 Notes on Eye, Ear, Nose and Throat, in Aviation Medicine. 1941. 286 pp. Illustrated. Plates. 35c.

W 1.35:8-305 Notes on Cardiology in Aviation Medicine. 1940. 204 pp. 25c.

W 1.35:8-320 Notes on Psychology and Personality Studies in Aviation Medicine. 1941. 335 pp. Illustrated. 35c.

W 1.35:8-325 Outline of Neuro-Psychiatry in Aviation Medicine. 1941. 172 pp. Illustrated. 15c.

W 1.35:9-225 Browning Machine Gun, Caliber .50, M2, Aircraft, Fixed and Flexible. 1942. 54 pp. Illustrated. 10c. Supersedes Technical Manual 9-225, Nov. 8, 1940.

W 1.35:9-227 20mm. Aircraft Gun Materiel M1 and M2. 1942. 45 pp. Illustrated. 10c. Supersedes Technical Manual 9-227, Dec. 16, 1941.

W 1.35:9-240 37mm. Aircraft Gun Materiel M4. 1942. 40 pp. Illustrated. 10c. Supersedes Technical Manual 9-240, April 10, 1941.

W 1.35:30-250 Military Dictionary, English-Spanish, Spanish-English. 1941. 199 pp. 50c.

W 1.35:30-252 Portuguese Phrase-Book. 1942. 42 pp. 10c.

W 1.35:30-254 Military Dictionary (Advance Installment), part 1, English-Russian, part 2, Russian-English. 1941. 610 pp. Illustrated. 65c.

W 1.35:30-255 Military Dictionary (Advance Installment), part 1, English-German, part 2, German-English. 1941. 709 pp. 75c.

W 1.35:30-256 Icelandic Phrase-Book. 1941. 30 pp. 10c.

W 1.35:30-257 Military Dictionary (Advance Installment), part 1, English-Portuguese, part 2, Portuguese-English. 1941. 190 pp. 45c.

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Financial Briefs

DELTA AIR Corp., Atlanta, Ga., reports as of June 30, 1942, net income of \$358,602, equal to \$1.80 each on 19,924 common shares, contrasted with net loss of \$85,714 in the preceding fiscal year.

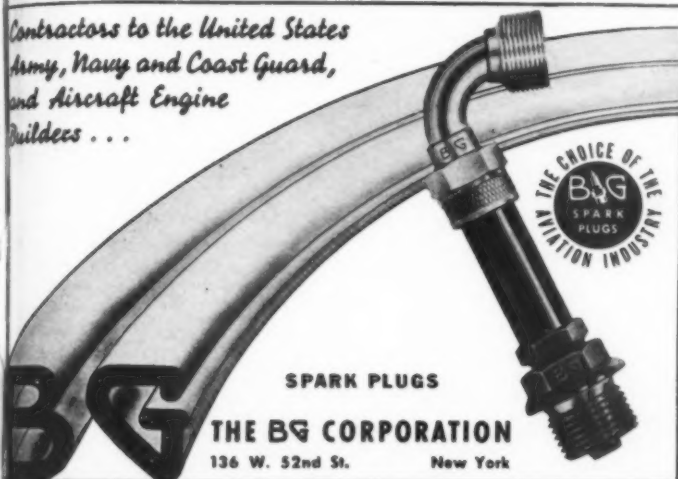
BELL AIRCRAFT Corp., Buffalo, N. Y., has voted \$2.00 on each share to stockholders of record Nov. 10, payable Nov. 25, making the second dividend declared by Bell since its organization seven years ago.

NORTHROP AIRCRAFT, Inc., Hawthorne, Cal., discloses sales of \$32,983,762

for the fiscal year ended July 31, 1942, compared with the \$3,407,704 in the same period of 1941, this represents an increase of 870%. Net profit for the period ending in 1942 was \$3,044,741, equivalent to \$7.93 a share on combined class A and B, common. In the corresponding period in 1941, the firm experienced a loss of \$848,778.

AERO SUPPLY MFG. Co., Inc., Corry, Pa., in report for the quarter ended Sept. 30, 1942, states net sales amounted to \$4,771,548.48, and tentative net income was \$307,634.94, based on the Revenue Act of 1942.

Contractors to the United States Army, Navy and Coast Guard, and Aircraft Engine Builders . . .



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TWO OUTSTANDING BOOKS

that give you the "KNOW HOW" of **METEOROLOGY and NAVIGATION**

MADE TO BE USED is the trademark of all Cornell books, and these are no exceptions. Written by veterans, they are reliable handbooks for both oldtimers and students.

METEOROLOGY for SHIP and AIRCRAFT OPERATION

by **PETER E. KRAGHT, Sr.** Meteorologist, American Airlines

Written in straightforward language, this book handles winds and weather with full emphasis on problems of plane and ship operation. Beginning with basic facts about the air, the author continues with horizontal and vertical winds, and their accompanying weather, and a long section on fog and other low clouds. Instead of formulae, 21 practical, easy-to-read tables are presented. Added features are glossaries of winds and technical terms, and an 8-page photographic section of cloud forms.

Especially outstanding are the 155 illustrations prepared by the author which explain and clarify nearly every page of text.
372 Pages 169 Illustrations \$3.00

NAVIGATION FOR MARINES AND AVIATORS

by **CAPTAIN DAVID POLOWE**

This book presents the 5 main problems of navigation in careful detail. The complete Dreisonstok (H.O. 208) Tables are included, and all necessary pages from the Nautical Almanac, so that no reference books are needed. It explains the use of the American Air Almanac, devotes chapters to dead reckoning, piloting, examination questions, etc.
528 Pages Fully Illustrated \$5.00

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We make lungs



FOR ONE-MAN RAFTS

THERE'S a new story coming out of the great Pacific war theatre. We are beginning to read it over and over again. It is a good story, because it's about men's lives being saved . . . lives which would have been lost in World War No. 1.

Harold Dixon told the story first. He and his bomber crew floated for 34 days on a 4' x 8' rubberized carbon-dioxide-inflated raft. Then Ensign Gay added his version. He clung to his Kidde raft and got a "fish-eye view" of the Midway sea battle. Now we hear of Aviation Machinist Winchell who drifted for 18 days, sharing his raft with his radioman.

These men owe their lives to rubberized fabric and carbon dioxide gas. We handle the gas part. Walter Kidde & Company makes carbon dioxide cylinders and valves which turn a bundle of fabric into a buoyant life-raft.

Now the trend points to each man carrying his own raft in a parachute-type pack. A Kidde bottle, holding ¾ lb. of carbon dioxide, inflates the boat. We make the cylinder shatter-proof so it won't fragment, if a bullet hits it.



Thus, carbon dioxide tackles another war assignment. When you check all the jobs it is doing, carbon dioxide is certainly the hardest-working gas that man knows and uses. High-pressure gases are our special field. Kidde engineers stand among leading U. S. experts in storage, release, valving of gases under pressure.

If any aspect of high-pressure gases presents a problem to your technical staff, we hope you'll call us in.

Research and Development Department of

Kidde



Walter Kidde & Company, Inc.

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--- ADVERTISEMENT ---

Washington, D. C.
November 15, 1942.

Dear Subscriber:

The new AMERICAN AVIATION DIRECTORY for Fall-Winter, 1942-43, will soon be off the press. War Department censorship clearance to publish this issue has been secured, but distribution is restricted to the continental United States.

If you have not already ordered your copy, you should do so now. It will be invaluable to you in the months to come. The Directory contains detailed information on over 2,000 companies and organizations, and in addition over 12,500 names and titles of individuals in the industry. They are the key men you will want to know about.

Here is an outline of the index:

1. AIR TRANSPORT COMPANIES
2. PARENT COMPANIES, HOLDING & INVESTMENT COMPANIES
3. MANUFACTURING COMPANIES
(Aircraft - Engines - Propellers)
4. ACCESSORY and EQUIPMENT MANUFACTURERS
5. SPECIAL SERVICES — Aviation Insurance; Air Express and Air Freight; Credit and Financing; Export and Brokerage Services.
6. SCHOOLS and LOCAL AIR SERVICES
7. AVIATION ORGANIZATIONS and ASSOCIATIONS
8. AGENCIES of the GOVERNMENT — State Commissions and Boards of Aeronautics; Canadian and Latin American Government Agencies and Officials concerned with Aviation.
9. ALPHABETICAL INDEX to INDIVIDUALS
(The name of each of the 12,500 aviation key people, with reference to the section and page on which his title, company or organization will be found.)

This is the only Directory of its kind. You cannot afford to be without a copy for your personal use.

AMERICAN AVIATION DIRECTORY is published twice a year, Spring and Fall. The cost is \$5.00 for one copy, or \$7.50 for two successive editions.

SEND YOUR ORDER NOW TO RESERVE YOUR COPY.

AMERICAN AVIATION ASSOCIATES, Inc.
American Building, Washington, D. C.

Mfg. Digest

GLENN L. MARTIN Co., Baltimore, Md., discloses its disability accident frequency rate was 10 accidents per 1,000,000 man-hours in August. Company claims this rate has decreased since May, despite increases in personnel, and that it is "well below the national rate for the aircraft industry . . ." Safety Dept. reported 1,621 fewer first-aid cases in August than in July, none of which was fatal.

AIRCOOLED MOTORS Corp., Syracuse, N. Y., reports it has received additional orders for "unrevealed" quantities of Franklin air-cooled aircraft engines from both the AAF and Navy's Bureau of Aeronautics. Engines are said to be the air-cooled, horizontally-opposed type. AMC expects to be in quantity production by Jan. 1.

ARLINGTON FURNITURE Co. is converting for the manufacture of naval training planes out of plastics and plywood in its Illinois plant. This plant was purchased by Defense Plant Corp. and leased to Interstate Aircraft and Engineering Corp., El Segundo, Cal. No details are as yet available on the planes to be produced.

NORTH AMERICAN AVIATION, Inc., Inglewood, Cal., quotes a Polish flyer as saying its P-51 Mustang fighter "Is an ideal machine, it is fast, extremely responsive, maneuverable, and, best of all it has no vice." The Mustangs, in service with the RAF, were reported to be the first American fighters to cross into occupied France after the fall of France.

VULTEE AIRCRAFT, Inc., Vulture Field, Cal., announces that, effective Sept. 21, its materiel offices, including purchasing and material control, will be located in the Bendix Building, 1206 Maple Avenue, Los Angeles, Cal.

REPUBLIC AVIATION Corp.'s Indiana plant recently tested its first P-47, said to have been produced three months ahead of schedule.

NORTH AMERICAN AVIATION, Inc., Inglewood, Cal., announces the War Dept. will confer the Army-Navy Production Award on both the Inglewood and Texas units. The Inglewood selection



The Voice of AVIATION

Radio and Aviation have grown hand in hand — dependent on one another! Pioneers in both fields realized that successful aircraft operation, in peace or war, demands efficient communications. Frank Melville has given his time and energy to the development of Melville Aeronautical Radio School because he foresaw that the nation would need a dependable source of training men and women in radio communications for America's planes — first for Victory, then for Progress.

MELVILLE
AERONAUTICAL RADIO SCHOOL, INC.
45 West 45th Street New York City
Training Men & Women for Radio in the Service of
AIRLINES - ARMY - NAVY - MARINES - MERCHANT MARINE - COAST GUARD - INDUSTRY

makes it the first California plant to be so honored.

NEW AUDITING METHOD: "A selective auditing procedure," which will simplify and speed audits on cost-plus-fixed-fee supply Army contracts, has been made ready by the Fiscal Division of the Services of Supply, the War Dept. announces. Whenever the contractor has "a satisfactory system of internal control" the new system will be applied. Rather than make a detailed check of all documents in support of contractors' invoices, "representative sections of transactions to be audited" will be selected. It is believed this method will speed reimbursement of contractors, need fewer accountants, reduce work duplication, and cut the auditing cost.

Manufacturing Personnel

(Continued from page 46)

Thomas F. Kahoe has been appointed general superintendent of plant "L", of the Pratt and Whitney Aircraft Division of United Aircraft Corp., East Hartford, Conn. Lester H. Lancaster will hold a similar position at plant "M", and John S. Robertson will have the same assignment at plant "N". These are new branches, which it is reported will start operations within a few months.

George C. Pomeroy, formerly with the Cities Service Corp., has joined the flight-and-service department of Consolidated Aircraft Corp., San Diego, Cal.

Elmer P. Guith, formerly hydraulic engineer with the Waco Aircraft Co., Troy, O., is now on the staff of field service engineers of Pump Engineering Service Corp., division of Borg-Warner, Cleveland, O.

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Charles E. Rochester, V. P. & Mgr. Div.

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On the Labor Front

ALUMINUM COMPANY OF AMERICA

Plant at Vancouver, Washington, is directed by NLRB to hold an election among employees for bargaining representation. Workers will vote for Aluminum Workers of America—CIO, for Aluminum Trades Council of Vancouver—AFL or neither.

AUTOMOTIVE COMPANIES, Detroit, Mich.

NWLB has unanimously granted an increase of 6c an hour to skilled machine repair men, machinists, millwrights and electricians of General Motors Corp., Ford Motor Co., and Chrysler Corp. . . . but denied request of UAW-CIO and NER&M-CIO for a general increase for all maintenance, powerhouse and construction workers of the three companies, and a blanket minimum of \$1.50 an hour for all skilled employees in these categories.

CONSOLIDATED AIRCRAFT CORP.

Plant at San Diego, Calif., is advised by NLRB to bargain collectively, upon request, with IAM-AFL, Aircraft Lodge No. 1125, as exclusive representative of all hourly paid employees and salaried inspectors. At the Fort Worth, Texas, plant, a complaint charging discrimination filed against the company was ordered dismissed by an NLRB trial examiner.

CRUCIAL STEEL CO., and subsidiary, Drawn Steel Co., East Liverpool, O.

United Steel Workers of America-CIO is certified as agent for production and maintenance employees.

CURTIS-WRIGHT CORP.

IAM-AFL employees of airplane division has asked the U. S. Conciliation Service to intervene in contract negotiations.

GENERAL MOTORS CORP.

At the Eastern Aircraft, Linden Division, Linden, N. J., Pattern Makers of North America-AFL was certified as bargaining representative for pattern makers and apprentices. Disputes at the plant at Meriden, Conn., and Fisher Body at Kansas City, with UAW-CIO involving wages and union shop, have been certified to NWLB.

MORSE TWIST DRILL & MACHINE CO., New Bedford, Mass.

Controversy with UER&M-CIO employees over grievance machinery is certified to NWLB.

MOULDERS PRODUCTS CORP., Chicago, Ill.

Dispute with independent union, Plastic Workers Union, over wage rates has been certified to NWLB.

RYAN AERONAUTICAL CO., San Diego, Cal.

A new case involving wages has been certified to NWLB. A previous case was settled in the spring.

STEEL CASTING CO., Los Angeles, Cal.

Company is directed by NWLB to grant increases averaging 10c an hour retroactive to Sept. 14, 1942. Wages in the various job classifications now range from 75c to \$1.17½ an hour.

THOMPSON PRODUCTS, INC.

Plant at Bell, Calif., is advised by NWLB to withdraw all recognition from any to completely disestablish the Pacific Motor Parts Workers Alliance as representative of employees for collective bargaining.

THE YODER COMPANY, Cleveland, O.

Company is ordered by NLRB to withhold all recognition from Independent Welfare Association, Inc., and completely disestablish Association.

Financial Briefs

NORTH AMERICAN AVIATION, Inc., Inglewood, Cal., at board of directors meeting in New York City Oct. 22, declared a dividend of \$1.00 per share, payable Nov. 23 to stockholders of record Nov. 2.

LOCKHEED AIRCRAFT CORP., Burbank, Cal., announces its directors on Oct. 26 declared a dividend of \$2.00, payable Nov. 14 to stockholders of record Nov. 5. Company also announces a special meeting of its shareholders will be held Dec. 3, so that they can vote on a proposed employee's retirement income plan, which will be open to all full-time employees of Lockheed and subsidiaries who have been with these companies more than one year and whose salaries or wages are more than \$250 per month.

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THOMPSON PRODUCTS, Inc., Cleveland, O., and subsidiaries (excluding Thompson Aircraft Products Co.), reports for nine months ended Sept. 30 net profit of \$1,463,915, after tax and other deductions and provision of \$600,000 for post-war adjustments and contingencies. This is equal to \$4.61 each on 295,490 shares of common stock. In the 1941 period, net profit was \$1,264,784, or \$3.92 a common share.

Provision for Federal and Dominion income and excess profits taxes in 1941 totaled \$6,736,344, compared with \$2,755,465 in the 1941 fiscal year.

Combined net sales in the first nine months of 1942 amounted to \$61,733,632. Thompson Products, Inc., the parent company, delivered \$43,086,792 of this figure, and Thompson Aircraft Products accounted for \$18,666,241.

DOUGLAS AIRCRAFT CO., Santa Monica, Cal., directors have declared dividend of \$5.00 on each share of capital stock, payable Nov. 21 to stockholders of record Nov. 7.

Classified Ads

NOTICE—OPERATORS—Have several desirable locations in a Midwestern State for reliable airport operators. Must have equipment and experience. Ordinary operating cash required. Full record must be good. Write, giving full information in first letter. Address: BOX 352, AMERICAN AVIATION, American Building, Washington, D. C.



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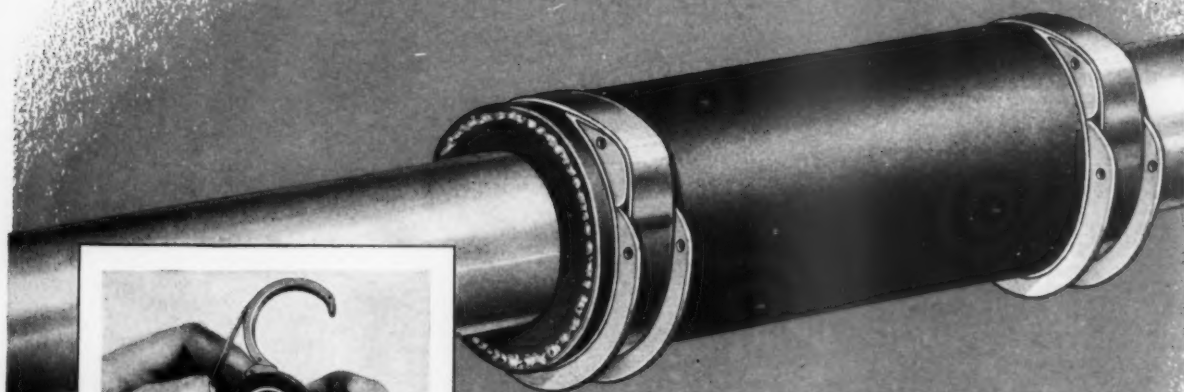
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